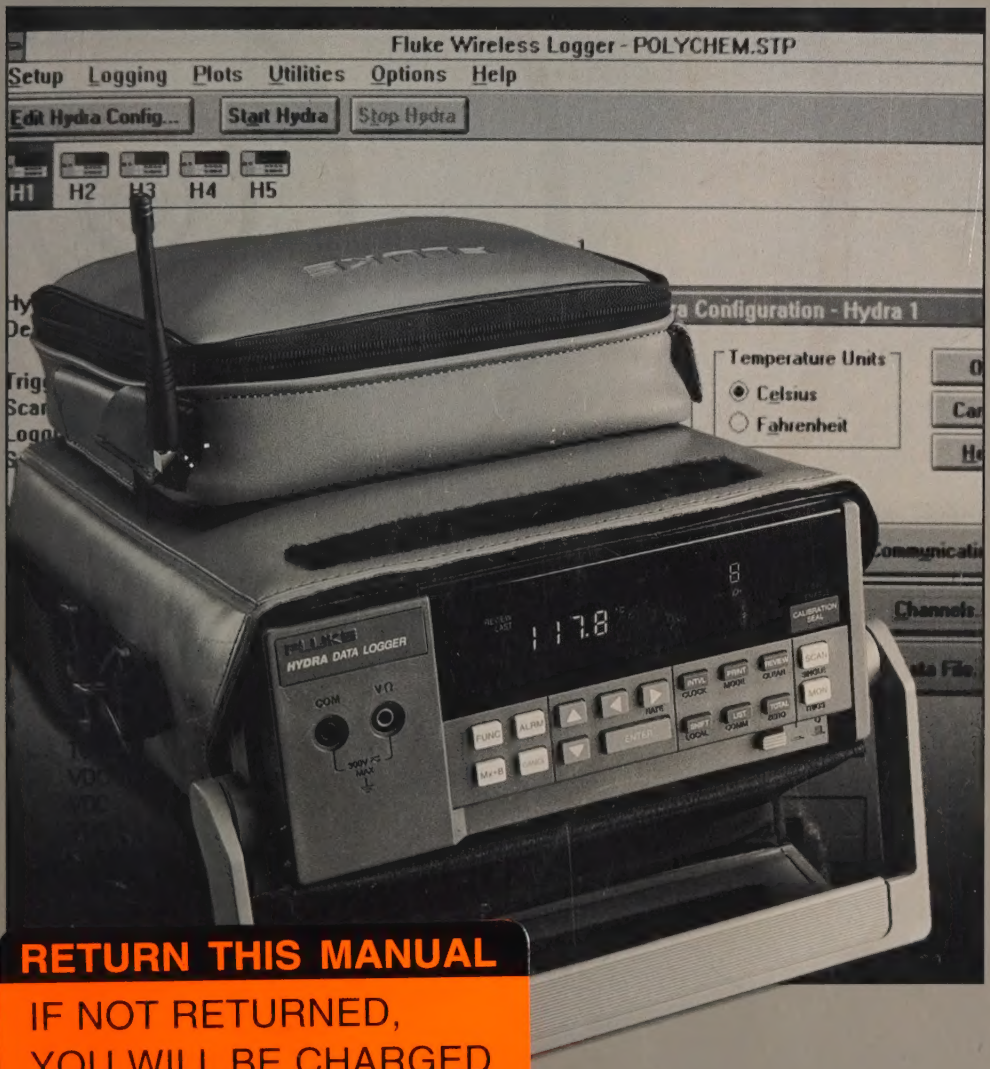
WIRELESS LOGGER™

DATA ACQUISITION TOOL



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WIRELESS LOGGER™

DATA ACQUISITION TOOL

PN 936562
JUNE 1993
Rev 1, 10/93
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FLUKE®

WARRANTY

Fluke Corporation (Fluke) warrants this instrument to be free from defects in material and workmanship under normal use and service for a period of 1 year from data of shipment. Software is warranted to operate in accordance with its programmed instructions on appropriate Fluke instruments. It is not warranted to be error free. This warranty extends only to the original purchaser and shall not apply to fuses, computer media, batteries, or any instrument which, in Fluke's sole opinion, has been subject to misuse, alternation, abuse or abnormal conditions of operation or handling.

Flukes obligation under this warranty is limited to repair or replacement of an instrument which is returned to an authorized service center within the warranty period and is determined, under examination by Fluke, to be defective. If Fluke determines that the defect or malfunction has been caused by misuse, alternation, abuse, or abnormal conditions of operation or handling, Fluke will repair the instrument and bill the purchaser for the reasonable cost of repair. If the instrument is not covered by this warranty, Fluke will, if requested by the purchaser, submit an estimate of the repair costs before work is started.

To obtain repair service under this warranty, the purchaser must forward the instrument (transportation prepaid) and a description of the malfunction to the nearest Fluke Service Center. The instrument shall be repaired at the service center or at the factory, at Fluke's option, and returned to the purchaser, transportation prepaid. FLUKE ASSUMES NO RISK FOR INTRANSIT DAMAGE.

THE FOREGOING WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. FLUKE SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR LOSS WHETHER IN CONTRACT, TORT, OR OTHERWISE.

CLAIMS

Immediately upon arrival, the purchaser shall check the packing container against the enclosed packing list and shall, within thirty (30) days of arrival, give Fluke notice of shortages or any nonconformity with the terms of the order. If the purchaser fails to give notice, the delivery shall be deemed to conform with the terms of the order.

The purchaser assumes all risk of loss or damage to instrument upon delivery by Fluke to the carrier. If an instrument is damaged in transit, PURCHASER MUST FILE ALL CLAIMS FOR DAMAGE WITH THE CARRIER to obtain compensation. Upon request by the purchaser, Fluke will submit an estimate of the cost to repair shipment damage.

Fluke will be happy to answer all questions to enhance the use of this instrument. Please address your request or correspondence to: Fluke Corporation, P.O BOX C9090, EVERETT, WA 98206

This product is classified Class III equipment by IEC 1010-1 Annex H.

INTERFERENCE INFORMATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Fluke Corporation

SAFETY TERMS IN THIS MANUAL

This instrument has been designed and tested in accordance with IEC Publication 1010, Safety Requirements for Electrical Measuring, Control and Laboratory Equipment. This User Manual contains information, warnings, and cautions that must be followed to ensure safe operation and to maintain the instrument in a safe condition. Use of this equipment in a manner not specified herein may impair the protection provided by the equipment.

The meter is designed for IEC 664, Installation Category II use. It is not designed for use in circuits rated over 4800VA.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

CAUTION statements identify conditions or practices that could result in damage to equipment.

SYMBOLS MARKED ON EQUIPMENT

DANGER -- High voltage.

Ground (earth) terminal.

Protective ground (earth) terminal. Must be connected to safety earth ground when the power cord is not used.

Attention – refer to the manual. This symbol indicates that information about usage of a feature is contained in the manual. This symbol appears in the following two places on the instrument rear panel:

1. Ground Binding Post (left of line power connector).

2. Alarm Outputs/Digital I/O Connectors.

AC POWER SOURCE

The instrument is intended to operate from an ac power source that will not apply more than 264V ac rms between the supply conductors or between either supply conductor and ground. A protective ground connection by way of the grounding conductor in the power cord is required for safe operation.

DC POWER SOURCE

The instrument may also be operated from a 9 to 16V dc power source when either the rear panel ground binding post or the power cord grounding conductor is properly connected.

USE THE PROPER FUSE

To avoid fire hazard, use only a fuse identical in type, voltage rating, and current rating as specified on the rear panel fuse rating label.

GROUNDING THE INSTRUMENT

The instrument utilizes controlled overvoltage techniques that require the instrument to be grounded whenever normal mode or common mode ac voltages or transient voltages may occur. The enclosure must be grounded through the grounding conductor of the power cord, or if operated on battery with the power cord unplugged, through the rear panel ground binding post.

USE THE PROPER POWER CORD

Use only the power cord and connector appropriate for the voltage and plug configuration in your country.

Use only a power cord that is in good condition.

Refer cord and connector changes to qualified service personnel.

DO NOT OPERATE IN EXPLOSIVE ATMOSPHERES

To avoid explosion, do not operate the instrument in an atmosphere of explosive gas.

DO NOT REMOVE COVER

To avoid personal injury or death, do not remove the instrument cover. Do not operate the instrument without the cover properly installed. Normal calibration is accomplished with the cover closed, and there are no user-serviceable parts inside the instrument, so there is no need for the operator to ever remove the cover. Access procedures and the warnings for such procedures are contained in the Service Manual. Service procedures are for qualified service personnel only.

DO NOT ATTEMPT TO OPERATE IF PROTECTION MAY BE IMPAIRED

If the instrument appears damaged or operates abnormally, protection may be impaired. Do not attempt to operate it. When in doubt, have the instrument serviced.

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Quick Start

Quick Start

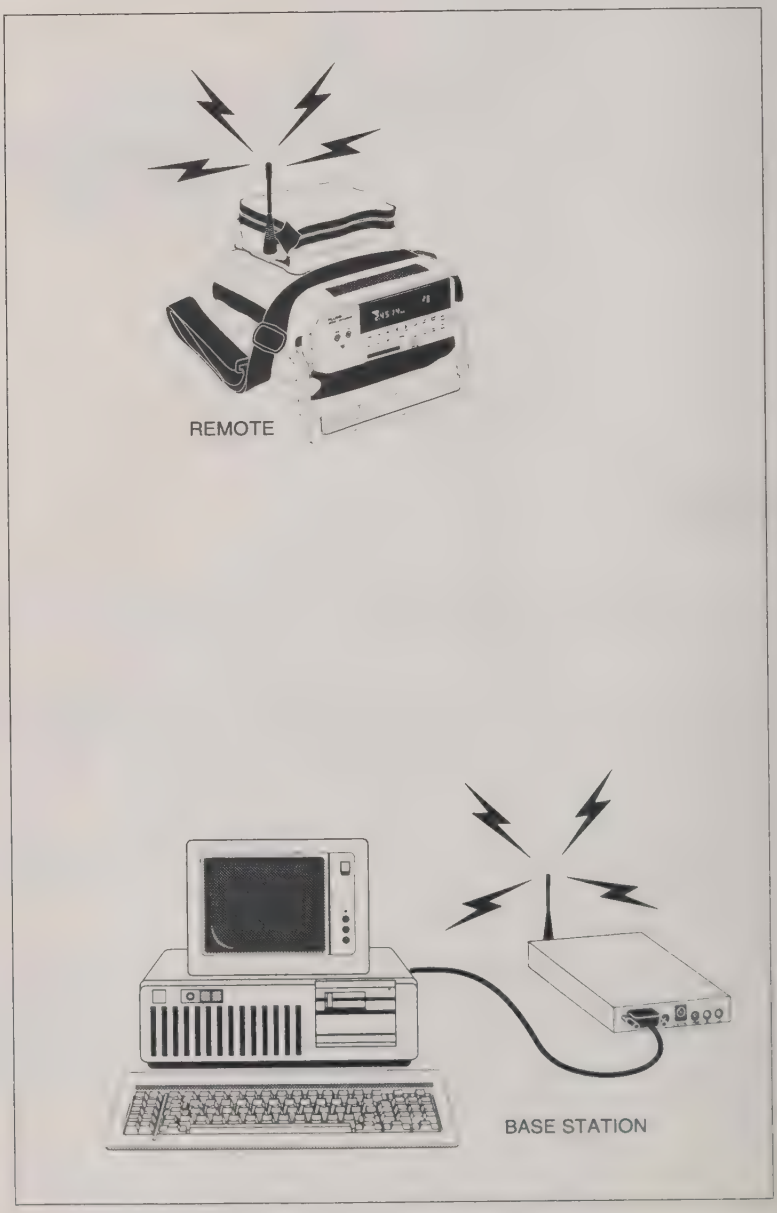
NOTE

Follow the information and warnings in this manual to ensure safe operation and to keep the instrument in safe condition.

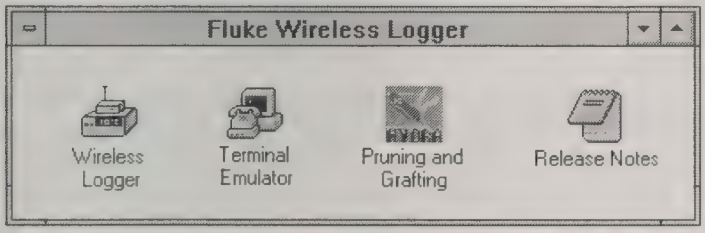
Complete this Quick Start procedure to quickly familiarize yourself with the features and functions of the Wireless Logger™ data acquisition tool (Wireless Logger tool) and the *Wireless Logger for Windows* software package. Each step references a figure or paragraph for more information.

Quick Start assumes a knowledge of Microsoft Windows 3.1, and the use of COM2 on your Host Computer for connecting the wireless modem. (If you are using COM1, replace all COM2 references to COM1.) In this procedure, the wireless modems use radio channel 4 (default).

It is further assumed that you have one 2625A/WL-700 Wireless Base Station Package, and at least one 2625A/WL Wireless Logger Data Acquisition Tool or one 26X5A/WL-701 Hydra Wireless Logger Conversion Kit fitted to an existing Hydra. The figure on the following page illustrates the Base Station and Remote setup used for Quick Start.

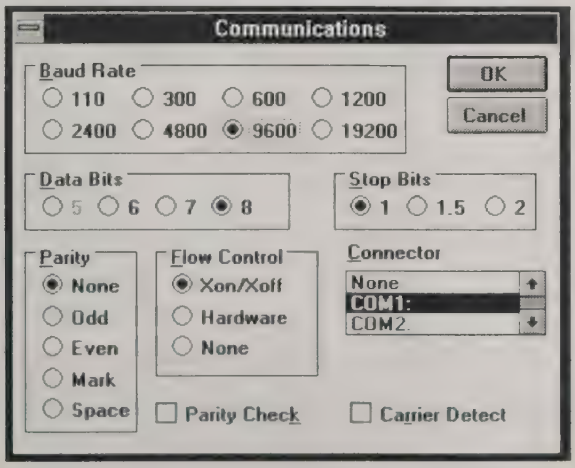

REMOTE
BASE STATION

Step 1 **Install *Wireless Logger for Windows* Software**. Open Windows to the Program Manager. Select the Run... command from the File menu, opening the Run dialog box. Insert the *Wireless Logger for Windows* diskette into your disk drive. In the Command Line box of the Run menu, enter the path and command for the diskette `setup.exe` file, e.g., `a:\setup.exe`. Click OK. Follow the installation prompts. After installation, the Fluke Wireless Logger group, with four icons, appears in Program Manager (below).



Step 2 **Connect a Thermocouple Input**. Connect the T-type thermocouple supplied with the Hydra to Channel 1 of the Universal Input Module. The blue lead connects to the high (H) terminal and the red lead to the low (L) terminal. (Refer to the Hydra manual.)

Step 3 **Open the Terminal Emulator**. Open Terminal Emulator from the Fluke Wireless Logger group of Program Manager. If using COM1, select the Communications... command from the Settings menu and change the Connector to COM1 (below).



Step 4 **Apply the Base Station Modem Label**. Apply the supplied Base Station Modem label to the wireless modem being configured for Base Station operation, and record the modem serial number (from the bottom side of the modem) and description (Base1, etc.). (See Figure 2-2.)

Step 5 **Connect the Base Station Modem to the Host Computer**. Connect the Base Station wireless modem to the Host Computer COM2 port using the supplied RS-232 cable (and cable adapter for the COM2 port if the port uses a DB9 connector instead of a DB25 connector). (See Figure 2-3.)

Step 6 **Power the Base Station Modem**. Connect the power module output connector to the wireless modem power input. Plug the wireless modem power module into a 115V ac/60 Hz power source. Verify the PWR light comes on and does not blink. (See Figures 1-2 and 2-3.)

Step 7 **Display the Base Station Modem configuration menu**. Press the small Reset/Enable button on the wireless modem (next to the power input). Verify the screen display is displaying the wireless modem configuration main menu (see below).

```
            RF Modem V2.4
      by Proxim Inc., (c) 1990,91

                MAIN MENU

Serial #: 32800        Radio Channel: 4

    D - Display Parameters
    R - Reset Parameters to Defaults
    C - Change Radio Channel
    N - Network Configuration
    S - Serial Configuration
    A - Advanced Configuration
    L - Launch Operating Mode


    Enter Selection:
```

Step 8 **Configure the Base Station Modem.** Enter the following commands to configure the Base Station modem:

r <Enter> y <Enter>
s <Enter>
b <Enter> 5 <Enter>
e <Enter> n <Enter>
m <Enter> 300 <Enter>
r <Enter> 13 <Enter>
r <Enter> 10 <Enter>
<Esc>
a <Enter>
b <Enter> bbbbb [modem serial number from step 4]
t <Enter> b <Enter>
o <Enter>
<Esc>
d <Enter> [The PARAMETER SETTINGS appear as below. b b b b b represents the Base Station modem serial number.]

```
                          PARAMETER SETTINGS
                            Serial #: bbbbb

Serial Port
-----------
          Operating Mode: Packetized              Delimiters: None
               Echo Mode: None                   Max Length: 300
               Baud Rate: 19200                Input Time-Out: Off

     XON/XOFF Generation: Disabled       XON/XOFF Recognition: Disabled
         CTS Generation: Disabled             DSR Generation: Disabled

Network
-------
           Radio Channel: 4                        Radio Speed: 121 KBaud
              Subchannel: 1                    Broadcast Address: bbbbb

         Dest. Serial #: None               Lost Communication: Continue
        Serial # Filter: None                      Type Filter: Broadcast
```

L <Enter> y <Enter>

(See Section 2 "Configuring a Base Station Modem.")

Step 9 **Disconnect the Base Station Modem.** Disconnect the Base Station modem and set it aside for use in step 15.

Step 10 **Apply the Remote Modem Label**. Apply the supplied Remote Modem label to the wireless modem being configured for Remote operation, and record the modem serial number from the bottom side of the modem, and description (H1, etc.). (See Figure 2-2.)

Step 11 **Connect the Remote Modem to the Host Computer**. Connect the Remote modem to the Host COM2 port. (See Figure 2-3.)

Step 12 **Power the Remote Modem**. Connect the power module output connector to the wireless modem power input. Verify the PWR light comes on and does not blink. (See Figure 1-2 and 2-3.)

Step 13 **Display the Remote Modem configuration menu**. Press the small Reset/Enable button on the wireless modem (next to the power input) and verify that the screen displays the wireless modem configuration main menu. (See Step 7.)

Step 14 **Configure the Remote Modem**. Enter the following commands to configure the Remote modem:

r <Enter> y <Enter>
s <Enter>
e <Enter> n <Enter>
f <Enter> x <Enter> <Esc>
m <Enter> 300 <Enter>
r <Enter> 13 <Enter>
<Esc>
a <Enter>
b <Enter> bbbbb <Enter>
[bbbbb is the Base Station modem serial number from step 4, not this modem's serial number]
e <Enter> y <Enter>
s <Enter> bbbbb <Enter>
[bbbbb is the Base Station modem serial number from step 4, not this modem's serial number]
t <Enter> d <Enter>
<Esc>
d <Enter> [The PARAMETER SETTINGS appear as below. r r r r r is the Remote serial number; b b b b b is the Base Station serial number.]

```
                          PARAMETER SETTINGS
                            Serial #: rrrrr

Serial Port
-----------
          Operating Mode: Pass-Through          Delimiters: 10
               Echo Mode: None                  Max Length: 300
               Baud Rate: 9600                Input Time-Out: Off

     XON/XOFF Generation: Enabled       XON/XOFF Recognition: Disabled
          CTS Generation: Disabled            DSR Generation: Disabled

Network
-------
           Radio Channel: 4                       Radio Speed: 121 KBaud
              Subchannel: 1                   Broadcast Address: bbbbb

          Dest. Serial #: Broadcast       Lost Communication: Continue
         Serial # Filter: bbbbb                     Type Filter: Directed
```

L <Enter> y <Enter>

(Refer to Section 2 "Configuring a Remote Modem.")

Step 15 **Exit the Terminal Emulator**. Select the Exit command from the File menu to close the terminal emulator. If you changed the COM port selection in the terminal communications settings (Step 3), in response to the "Save Changes?" prompt, enter "Yes," to save the changes for future operations.

Be sure you close the Terminal Emulator and not just iconize it because an open Terminal Emulator prevents the COM port from being used in any other application.

Step 16 **Connect the Base Station Modem**. Disconnect the Remote modem and reconnect the Base Station modem. Attach the antenna assembly. (See Figures 1-2 and 2-3.)

Step 17 **Connect the Remote Modem**. Connect the Remote modem to the Hydra and to the power source. Attach the antenna assembly. (See Figures 1-2 and 2-4.)

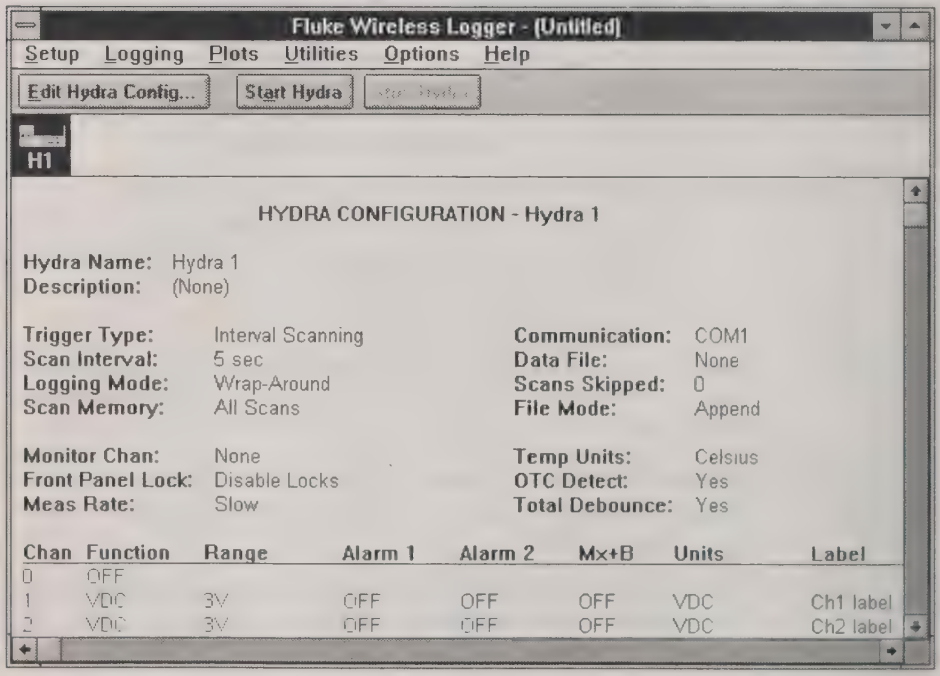
Step 18 **Configure the Hydra**. Power the Hydra and press the front panel [SHIFT] [LIST] keys, then up/down arrow keys and [ENTER] keys to select the Hydra RS-232 parameters: 9600 baud, no parity, CTS off (Model 2635A only), and echo off. (See Section 2, "Connecting a Remote.")

Step 19 **Start *Wireless Logger for Windows*.** Open Wireless Logger from the Fluke Wireless Logger group of Program Manager, displaying the Main Window (below).

The top menu bar is the Main Menu. Main Menu selections are Setup, Logging, Plots, Utilities, Options, and Help.

There are three Main Window buttons: Edit Hydra Config..., Start Hydra, and Stop Hydra. The Main Window buttons apply to the selected Hydra icon.

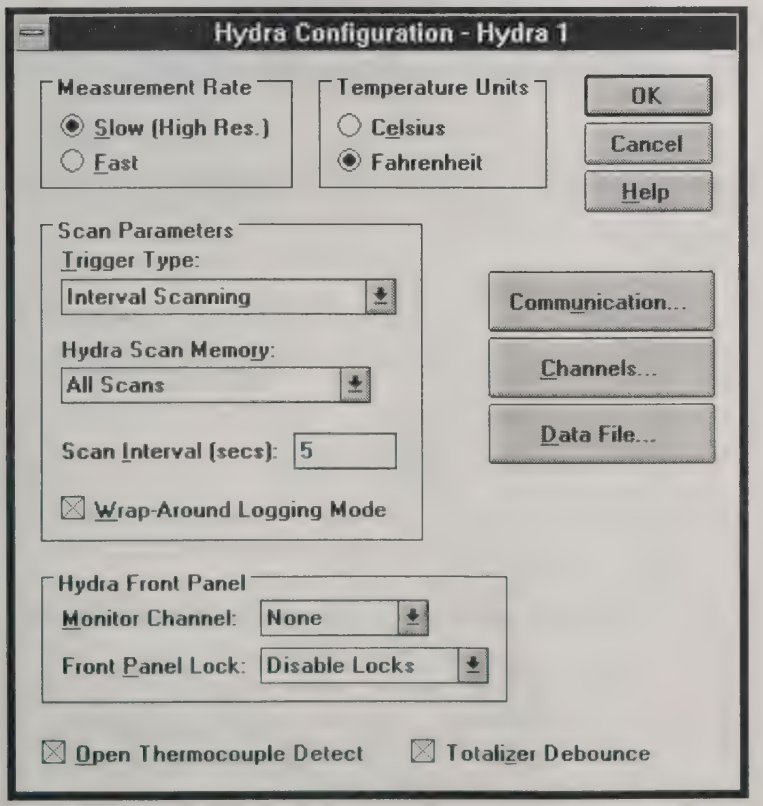
Below the Main Menu buttons is the instrument configuration summary for the selected selected Hydra icon.


Fluke Wireless Logger - (Untitled)
Setup Logging Plots Utilities Options Help
Edit Hydra Config...
Start Hydra
H1
HYDRA CONFIGURATION - Hydra 1
Hydra Name: Hydra 1
Description: (None)
Trigger Type: Interval Scanning
Scan Interval: 5 sec
Logging Mode: Wrap-Around
Scan Memory: All Scans
Communication: COM1
Data File: None
Scans Skipped: 0
File Mode: Append
Monitor Chan: None
Front Panel Lock: Disable Locks
Meas Rate: Slow
Temp Units: Celsius
OTC Detect: Yes
Total Debounce: Yes
Chan Function Range Alarm 1 Alarm 2 Mx+B Units Label
0 OFF
1 VDC 3V OFF OFF OFF VDC Ch1 label
2 VDC 3V OFF OFF OFF VDC Ch2 label

Step 20 **Configure Hydra 1 (H1).** Click the Edit Hydra Config... button located in the upper left hand corner of the Main Window to open the Hydra Configuration dialog box. Select Temperature Units Fahrenheit (below).

Except for the Temperature Units selection above, Quick Start uses the default settings for the Measurement Rate, Scan Parameters, Hydra Front Panel, Open Thermocouple Detect and Totalizer Debounce. For information on any parameter at any time, click the Help button.

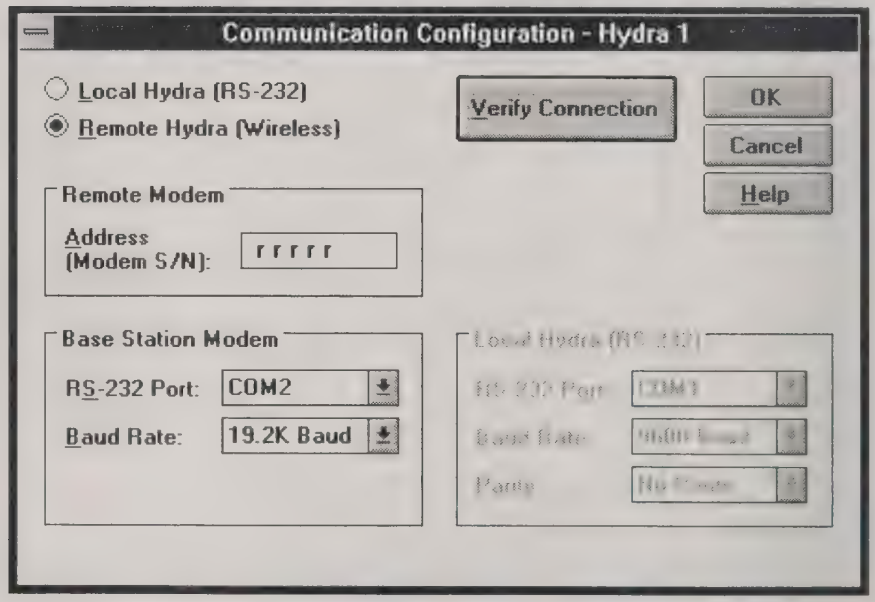
The Hydra Configuration dialog box has three buttons: Communications..., Channels..., and Data File... Each button selects the associated grouping of Hydra parameters.



Click the Communication... button to open the Communication Configuration dialog box. Click the Remote Hydra (Wireless) button. Enter the Remote modem serial number r r r r r (step 10) in the Remote Modem Address (Modem S/N) box (below).

Quick Start assumes the use of COM2 for the Host Computer wireless modem connection. If you have used a different COM port, make this selection in the Base Station Modem parameter group.

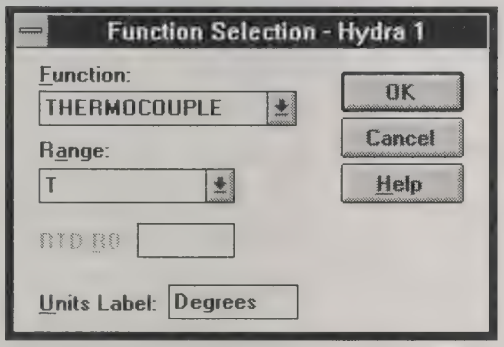
When configuring a Local Hydra connected to another available Host Computer COM port (e.g., COM1), select Local Hydra (RS-232) to enable the corresponding Local Hydra (RS-232) menu. *Wireless Logger for Windows* operates up to 20 Remotes, or 19 Remotes plus a Local Hydra.



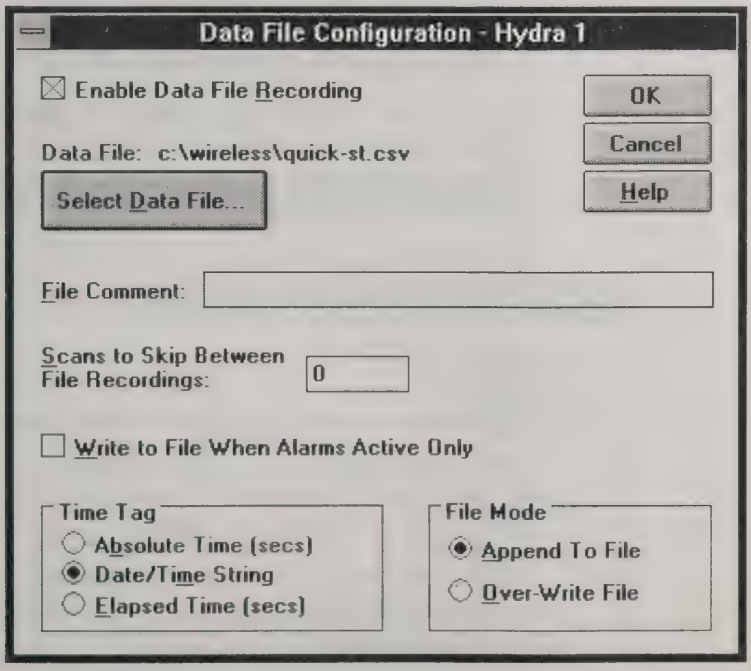
Click the Verify Connection button to verify Base Station and Remote modem communications. The message "Connection Successful!" indicates a successful connection. Click OK. If there is an error message, refer to Section 2 "Quick Check."

Click OK to return to the Hydra Configuration dialog box.

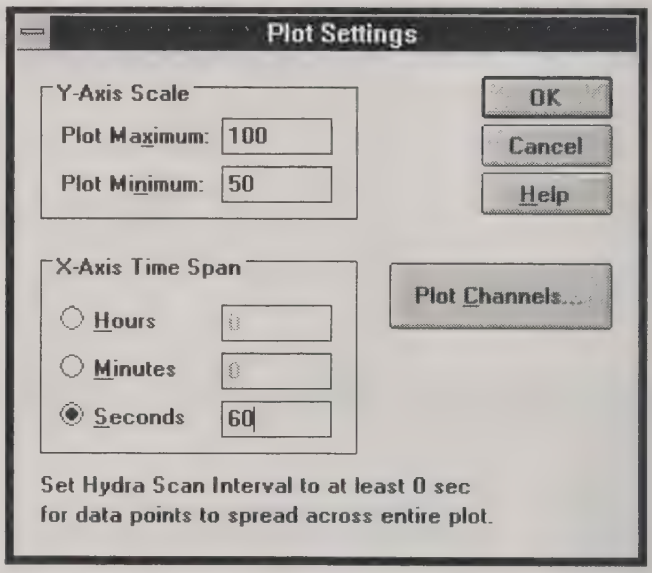
Click the Channels... button to open the Channels Configuration menu. Select Channel 1, then Function... to open the Function Selection menu. Configure Channel 1 for thermocouple measurements, Range T (below). Click OK twice.



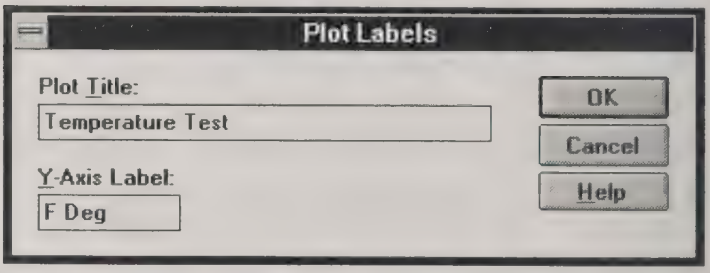
Click the Data File... button, then click the Enable Data File Recording box. Click the Select Data File button and enter the file name `quick-st.csv`. Click OK (see below). Click OK again.



Step 21 **Create a Trend Plot**. Select Create Plot from the Plots menu. Select Settings... from the Setup menu of the plot window and enter the choices (below). Click OK.



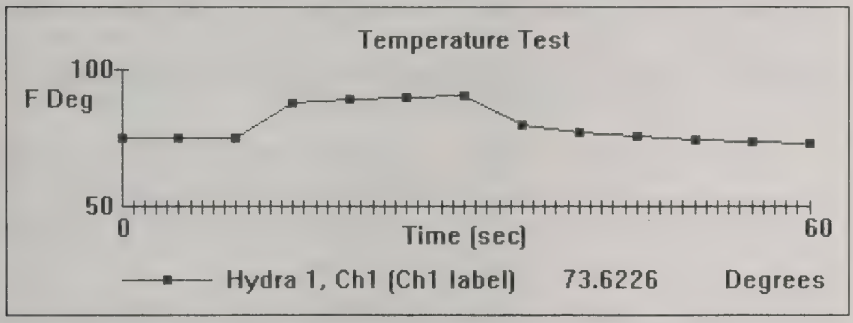
Select Labels... from the Setup menu and enter the choices below. Click OK. Select the Close Plot command from the Setup menu.



Step 22 **Save the Wireless Logger setup**. Select Save Logger Setup from the Setup menu of the Main Window. Enter `quick-st.stp` as the name of the setup file. Click OK.

Step 23 **Start the Hydra**. Click the Start Hydra button. After downloading the configuration, the Hydra scans at 5-second intervals (default), saving the data in `quick-st.csv`.

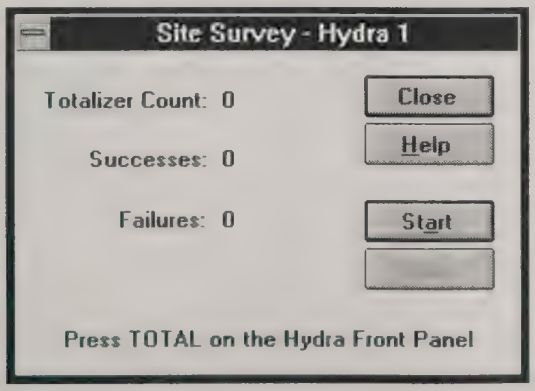
Step 24 **Start the Trend Plot**. Select Temperature Test from the Plots menu. Click the Start! command from the plot window. Grasp the end of the thermocouple (there is no danger of shock) to vary the plot trace. (See the following for a typical plot.)



Step 25 **Stop the Trend Plot**. Click the Stop! plot button. To save the plot trace as a graphic in the Windows clipboard, select the Copy Image from the Edit menu. You can paste a clipboard graphic into any application that accepts bit map formats. Select the Close Plot command from the Setup menu.

Step 26 **Stop the Hydra**. Click the Stop Hydra button (Main Window).

Step 27 **Position the Remote Hydra using Site Survey**. Select Site Survey... from the Utilities menu to open the Site Survey dialog box (below). Click the Start button. On the Hydra, press the [TOTAL] button. Verify the Hydra totalizer and Site Survey counts increment at 1-second intervals.



Unplug the Remote Hydra exactly as it is and move it to another location within radio range of the Base Station (line-of-sight range is typically 1200 feet). Plug in the Remote Hydra at the distant location and press the [TOTAL] button. When the Remote Hydra is within range of the Base Station, the Hydra totalizer count continues to increment. (While the Remote Hydra was unplugged, the Site Survey dialog box displayed how many times it failed to contact the Remote Hydra.)

Step 28 **Exit Site Survey**. Click the Stop button from the Site Survey dialog box. Click the Close button to exit the Site Survey.

Step 29 **Exit *Wireless Logger For Windows***. Select the Exit Application command from the Setup menu.

Step 30 **Conduct Normal Operations**. The Base Station and positioned Remote are ready for measurement connections and normal operations. Refer to Section 3 "Using *Wireless Logger for Windows*."

Section 1
Overview of the Wireless Logger Data Acquisition Tool

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INTRODUCTION 1-1.

The Wireless Logger™ data acquisition tool (Wireless Logger tool) (Figure 1-1) consists of Hydra Data Loggers communicating with a Host Computer via a wireless modem radio link. The Host Computer (not included) controls all operations using the *Wireless Logger for Windows* software. Table 1-1 shows the conversion kits and component parts for assembling a Host Computer into a Wireless Logger Base Station (Base Station), and assembling a Hydra into a Wireless Logger Remote (Remote).

The primary characteristics of the Wireless Logger tool are as follows:

- **Range**. The Wireless Logger tool allows up to 1200 feet (365 meters) of separation between a Wireless Logger Remote and the Host Computer.
- **Extendibility**. A Host Computer operates up to 20 Wireless Logger Remotes simultaneously. Add and subtract Remotes at any time.
- **Flexibility**. Freely position the Wireless Logger Remotes anywhere within range, from the simple to the most difficult-to-reach places.
- **Fast Setup**. Install the modems, position the Wireless Logger Remotes, open *Wireless Logger for Windows* and begin operations.
- **Ease of Use**. A few clicks of the mouse and the Wireless Logger Remotes go to work. Monitor measurements at any time at the Host Computer.

HOST COMPUTER REQUIREMENTS 1-2.

The Host Computer must meet the following minimum requirements:

- **System**. IBM PC Compatible computer with an Intel 386 microprocessor or greater
- **Hard Disk Drive**. Hard disk drive with 1 MB of available space
- **Floppy Disk Drive**. Floppy disk drive 1.2 MB (5 ¼-inch) or 1.44 MB (3 ½-inch)
- **Memory**. 640 KB of main memory plus at least 3 MB extended memory
- **Monitor**. Any monitor supported by Windows
- **Windows**. Microsoft Windows version 3.1 or later
- **DOS**. MS-DOS version 3.3 or later

A mouse is optional but it facilitates operation.

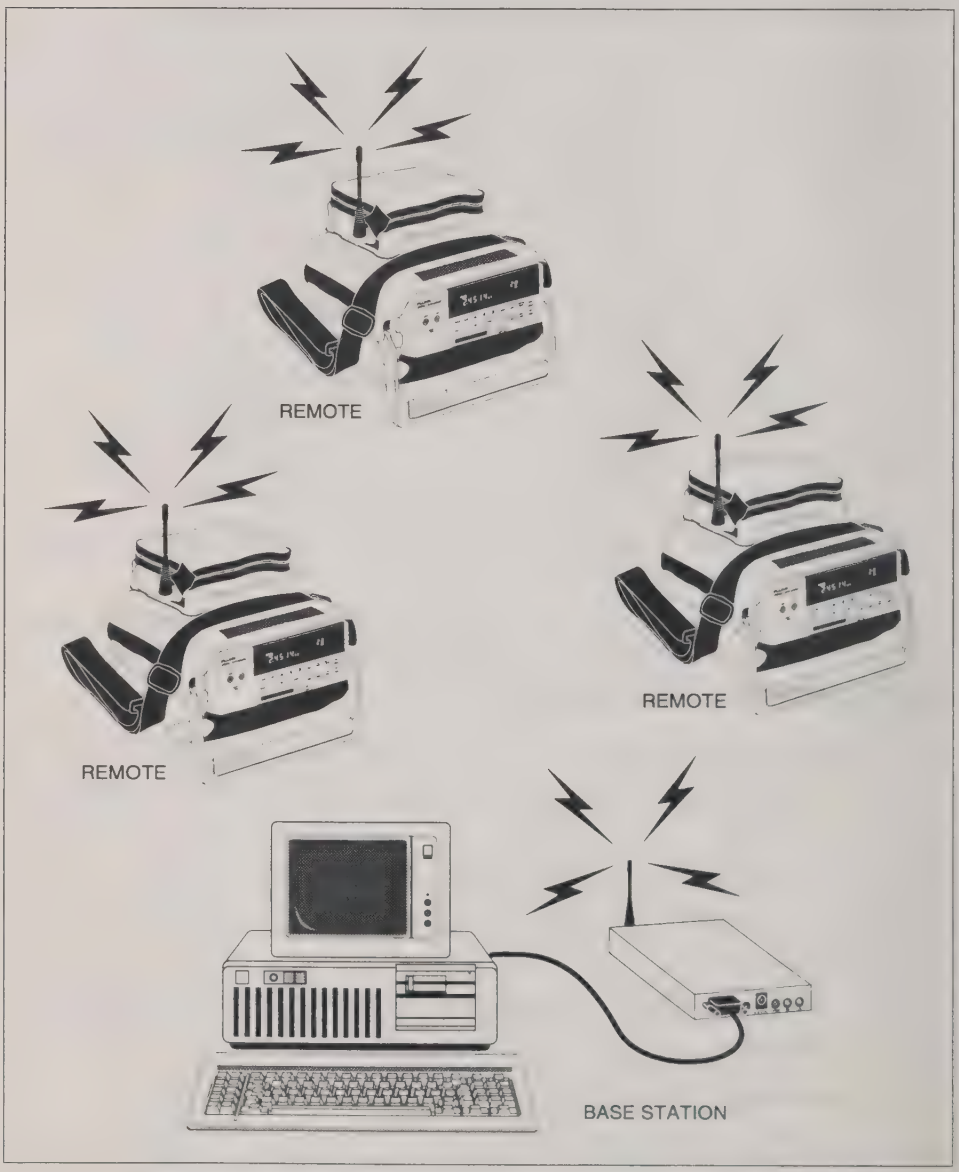


Figure 1-1. Wireless Logger Data Acquisition Tool

Table 1-1. Wireless Logger Models, Options, and Accessories

Part Number	Description
Models:	
2625A/WL	**Wireless Logger Data Acquisition Tool** 2625A Hydra Data Logger (Note 1) Wireless Modem (with Antenna, power supply, RS-232 cable) Soft Carrying Case for the Wireless Logger Tool Wireless Logger Data Acquisition Tool Manual 26X5A/WL-703 Wireless Logger Power Kit (see below) Labels: Remote Modem and Base Station Modem
2625A/WL-700	**Wireless Base Station Package** Wireless Modem (with Antenna, power supply, RS-232 cable) *Wireless Logger for Windows* Software RS-40 Cable (For a Local Hydra RS-232 connection to the Host) DB25 to DB9 RS-232 Cable Adapter Labels: Remote Modem and Base Station Modem Wireless Logger Data Acquisition Tool Manual
Options:	
26X5A/WL-701	**Hydra Wireless Logger Conversion Kit** (Note 2) Wireless Modem (Antenna, power supply, RS-232 cable) Soft Carrying Case for the Wireless Logger Tool Wireless Logger Tool manual 26X5A/WL-703 Wireless Logger Power Kit (see below) Labels: Remote Modem and Base Station Modem
26X5A/WL-702	**Wireless Modem** Modem (with Antenna, power supply, RS-232 cable)
26X5A/WL-703	**Wireless Logger Power Kit** Power Module for Wireless Modem Two-Receptacle Power Cable Short RS-232 Cable (used between Hydra and modem)
26X5A/WL-704	**Wireless Logger DC Power Kit** [Available Fall 1993] Battery Pack for the Hydra and Wireless Modem
26X5A/WL-902	***Wireless Logger for Windows* Software Package** Software Disk Set (-99002) Wireless Logger Tool manual
2620A-100	**I/O Connector Set** Universal Input Module Digital I/O and Alarm Output Connectors
26XXA-600	**Hydra Portable Battery Pack** [Available Fall 1993] Battery Pack for the Hydra

Table 1-1. Wireless Logger Models, Options, and Accessories (cont)

Accessories	
C42	Wireless Logger Soft Carrying Case
PV350	Pressure/Vacuum Transducer Module
80i-410	Clamp-On DC/AC Current Probe
80i-1010	Clamp-On DC/AC Current Probe
80J-10	Current Shunt
Note 1. 2625A Hydra Data Logger includes: Universal Input Module, Hydra Starter Software Package, T-Thermocouple, Users Manual, TL70 Test Lead Set, Power Cable.	
Note 2. Converts a standard Hydra 2625A Data Logger or 2635A Data Bucket into a Wireless Logger Remote.	

The 2625A/WL-700 "Wireless Base Station Package" (see Table 1-1) configures the Host Computer as a Wireless Logger Base Station. A Base Station package includes the wireless modem, *Wireless Logger for Windows* software, cables, an adapter, and modem labels.

HYDRA REQUIREMENTS 1-3.

The Wireless Logger tool requires one of two Hydra models:

- **2625A Hydra Data Logger**™ - Running software version 5.5 or higher
- **2635A Hydra Data Bucket**™ - Running any software version

The 2625A/WL "Wireless Logger Data Acquisition Tool" (Hydra included) or 26X5A/WL-701 "Hydra Conversion Kit" (Hydra not included) (see Table 1-1) configures a Hydra as a Wireless Logger Remote. A Remote package includes (in addition to the Hydra) the wireless modem, modem power module, cables and modem labels. The memory card feature is not used when a 2635A Hydra Data Bucket operates as the Hydra with the Wireless Logger tool. To view the 2625A Hydra Data Logger software version, at the Hydra front panel press the left/right arrow keys simultaneously. The larger number display is the software version. Press the CANCL key to clear display.

SPREAD SPECTRUM COMMUNICATIONS 1-4.

The Proxim ProxLink XR™ wireless modems (Figure 1-2) used with the Wireless Logger tool communicate using spread spectrum technology. Spread spectrum is a radio transmission technique used in radio frequency (rf) data communications. Developed originally for military use, spread spectrum provides non-jammable data links with a high degree of immunity to electrical interference from either natural or man-made sources. Spread spectrum transmission also has the ability to send data at much higher rates, approaching 10 Mb per second. The combination of noise immunity and high data rate transmission makes spread spectrum transmission technology ideally suited for the Wireless Logger data acquisition tool.

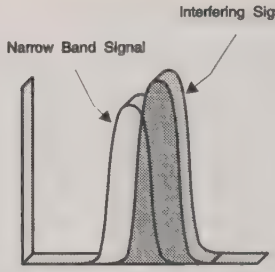
Spread Spectrum Licensing 1-5.

Spread spectrum operation with an effective radiated power (erp) of up to 1000 milliwatts (1 watt) requires no FCC licensing. The rf output of the Wireless Logger is 500 mW which falls well within this category.

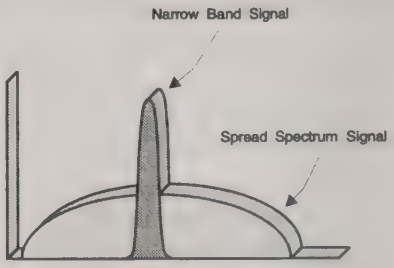
In accordance with the Radiocommunications Act of 1992 the Spectrum Management Agency (SMA) requires that an Apparatus License be obtained prior to use of the wireless modem in Australia and New Zealand. An application for this license may be obtained by contacting the SMA. This device has been approved for use in Australia on channels 4, 5, 6 and 7 only. In New Zealand channel 7 is the only channel approved for use.

Spread Spectrum in Operation 1-6.

Spread spectrum technology is fundamentally different from narrowband communications in the method of transferring data. Narrowband transmissions are narrowly centered on a carrier frequency with a typical information bandwidth of 25 kHz (see below). Narrowband receivers, tuned to the carrier frequency, detect and demodulate the carrier, and recover the data. An interfering signal that falls on or near the narrowband carrier frequency corrupts the transmission, causing data errors and unreliable communications.



Narrowband Communications



Spread Spectrum Communications

Spread spectrum avoids the problems of interfering signals by spreading the rf energy over a broader portion of the spectrum, up to 1,000 times broader than that used in narrowband communications (see above). Interfering signals come and go with little or no effect when using spread spectrum. The frequency range reserved for spread spectrum is 902 to 928 MHz. The Proxim ProxLink XR™ wireless modems divide this frequency range into seven channels, each with a nominal bandwidth of 2 MHz (Figure 1-3).

The spread spectrum transmitter uses a pseudo-random sequence and coded data signal to broadly phase-modulate a carrier. The transmitted data is effectively obscured, or "locked," within a frequency band. At the receiver, the identical pseudo-random code used by the transmitter is generated in the receiver demodulator stage, reconstructing the original data signal. The coding of information at the transmitter and associated decoding at the receiver permits communication only with stations programmed with the same carrier-encrypted code sequence. In the Wireless Logger tool, the basis of the pseudo-random code in each of the wireless modems is the modem serial number.

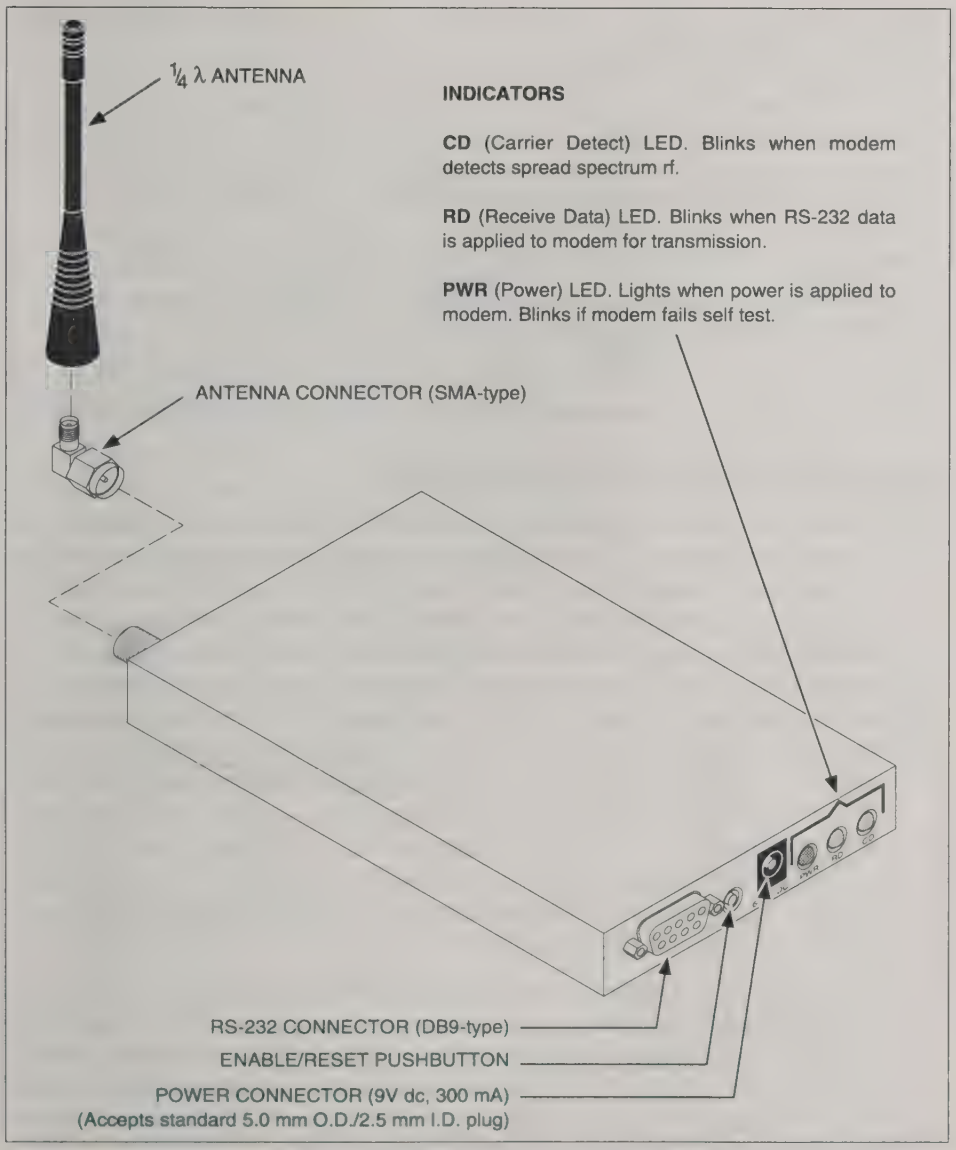

¼ λ ANTENNA
INDICATORS
CD (Carrier Detect) LED. Blinks when modem detects spread spectrum rf.
RD (Receive Data) LED. Blinks when RS-232 data is applied to modem for transmission.
PWR (Power) LED. Lights when power is applied to modem. Blinks if modem fails self test.
ANTENNA CONNECTOR (SMA-type)
RS-232 CONNECTOR (DB9-type)
ENABLE/RESET PUSHBUTTON
POWER CONNECTOR (9V dc, 300 mA)
(Accepts standard 5.0 mm O.D./2.5 mm I.D. plug)

Figure 1-2. Wireless Modem

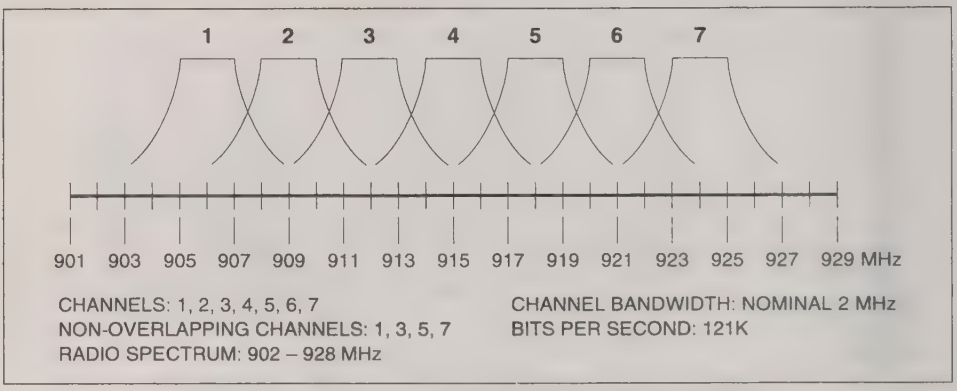

1
2
3
4
5
6
7
901 903 905 907 909 911 913 915 917 919 921 923 925 927 929 MHz
CHANNELS: 1, 2, 3, 4, 5, 6, 7
NON-OVERLAPPING CHANNELS: 1, 3, 5, 7
RADIO SPECTRUM: 902 – 928 MHz
CHANNEL BANDWIDTH: NOMINAL 2 MHz
BITS PER SECOND: 121K

Figure 1-3. Wireless Modem Channel Assignments

Spread Spectrum and Electrical Interference 1-7.

The spread spectrum broadband modulation/demodulation scheme is the key to its ability to reject noise. Spread spectrum distributes a relatively small amount of data over a frequency band that is much larger than required to handle the amount of information being transmitted. In addition, the information is modulated with a random code pattern that distributes minute parts of the original signal across the entire channel bandwidth. Noise from electromagnetic interference (EMI) or radio frequency interference (RFI) is generated typically in industrial areas by mechanical devices such as electric motor brushes, corona, relays, solenoids, induction heaters, lighting, and communications equipment. Noise from these devices normally concentrates in random spikes through a particular portion of a frequency band, and are very narrow and relatively random when compared to the spread spectrum bandwidth. A noise spike radiated onto a portion of the spread spectrum frequency band has little or no effect on the information carried within the frequency band.

The spreading technique used in spread spectrum not only helps to reduce the effects of signal interference, but also reduces the possibility of interference with other electronic devices. The broad carrier frequency limits the peak radiated power at any one area with the frequency band. As a result, this limited energy nearly eliminates the possibility that spread spectrum transmissions will create interference for other electronic instrumentation.

Using Spread Spectrum 1-8.

Like all rf devices, spread spectrum transmissions are affected by the environment they are used in. Most limitations are relatively stable and predictable, usually caused by physical surroundings such as buildings and other structures, and can often be circumvented by a little planning. For example, spread spectrum modems, like any other radiowave transmitter, cannot transmit through a solid metal enclosure. A window or door opening, however, is often enough to allow the spread spectrum signal to pass "through" a metal wall. The wireless modem rf output of 500 mW provides a range of about 800 feet. The range is somewhat less in buildings with significant metal content, and somewhat greater in outdoor line-of-sight applications.

SYSTEM OPERATION 1-9.

The Base Station sends commands and queries to the Remote Hydras, and the Remote Hydras respond with status and measurement data. Hydra temporarily stores the measurement scan records in its internal scan memory. On a polling basis, the Host Computer queries a Hydra for the scan record count. If the count is 1 or more, the Host Computer reads the scan records one by one, checking each record before deleting it from the Hydra scan memory. After reading up to ten scans, the Host Computer moves on to the next Hydra and the process repeats. If an error occurs in reading a scan record, the Host Computer also moves on to the next Hydra. After querying the last Hydra, the polling cycle repeats. Hydras that failed to transmit a scan record during a particular poll are read on the next polling cycle.

Wireless Logger for Windows SOFTWARE 1-10.

The *Wireless Logger for Windows* software provides an operating environment for the Wireless Logger tool. *Wireless Logger for Windows* builds a Hydra instrument and configuration database, transfers the configuration to the instrument, acquires data from the instrument and manages the acquired data. Some major features of *Wireless Logger for Windows* include:

- **Multiple Instruments**. Supports up to 20 Wireless Logger Remotes in simultaneous operation via a single Host Computer COM port.
- **Local Instrument**. Supports one Local Hydra instrument using an RS-232 cable to an available Host Computer COM port.
- **Ease of Use**. Provides fast and easy configuration and operation using menus and windows.
- **On-Line Help**. Extensive on-line help provides instantaneous answers to any setup or operating question.
- **Multiple Data Files**. Logs scan records to separate data files for each operating Wireless Logger Remote.
- **Links other Windows Applications**. Supports Dynamic Data Exchange (DDE) for linking Wireless Logger Remote measurement data with other Windows applications such as spreadsheets.
- **Trend Plots**. Displays up to eight trend plots, each able to display eight channels selected from any operating Wireless Logger Remote. As an option, you can display the data for the plot channels in numeric form below the plot.

For information on the features and operating characteristics, refer to Section 3 "Using *Wireless Logger for Windows*."

OPTIONS AND ACCESSORIES 1-11.

Table 1-1 summarizes the options and accessories for the Wireless Logger tool. See the corresponding Hydra users manual for additional options and accessories.

HOW TO USE THIS MANUAL 1-12.

Detailed Hydra operations appear in the following user manuals:

- **2625A Hydra Data Logger**. *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket**. *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

The Wireless Logger data acquistion tool manual discusses how to use a Hydra in a Wireless Logger tool configuration. The manual begins with Quick Start, continues through six sections, and ends with six appendices.

- **Quick Start**. Allows the experienced user to quickly set up and start operating the Wireless Logger tool. It is at the front of this manual.
- **Section 1 Overview of the Wireless Logger Data Acquisition Tool**. Provides an overview of the Wireless Logger tool, including the requirements and role of each system element, how the system operates, and features available in the operating software, *Wireless Logger for Windows*.
- **Section 2 Preparing the Base Station and Remotes.** Provides step-by-step procedures for installing *Wireless Logger for Windows*, configuring the Base Station and Remote wireless modems for operation, connecting the Base Station and Remotes into a network, and testing and configuring the network using *Wireless Logger for Windows*.
- **Section 3 Using *Wireless Logger for Windows***. Provides procedures for operating the Wireless Logger tool. Includes configuration procedures, reading measurement data, trend plots, and data files. An extensive Reference section details all *Wireless Logger for Windows* characteristics and operations.
- **Section 4 *Wireless Logger for Windows* Reference**. Provides complete descriptions in reference format for all *Wireless Logger for Windows* parameter selections.
- **Section 5 Pruning and Grafting Utility**. Provides complete instructions for operating the Pruning and Grafting Utility. This utility manipulates data files, combining separate data files into a single file, and filtering the data to obtain only the data of interest.

- **Section 6 Maintenance**. Provides a list of the Wireless Logger tool replaceable parts and gives troubleshooting hints, including decoding wireless modem error codes.
- **Appendices:** Ancillary information including Specifications, File Formats, Error Messages, Dynamic Data Exchange (DDE), Fluke Service Centers, and Exception Condition Handling.

UNPACKING AND INSPECTION 1-13.

Carefully remove the contents of the shipping container and inspect for damage or missing parts (see Table 1-1 for a list of parts). If any of the contents are damaged or anything is missing, contact the place of purchase immediately. Save the container and packing material. If repairs, equipment relocation, or extended storage are necessary, use the original container and packing material to prevent damage to the equipment.

Section 2
Preparing the Base Station and Remotes

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2-4. Configuring a Base Station Modem 2-6
2-5. Configuring a Remote Modem 2-15
2-6. CONNECTING A BASE STATION 2-22
2-7. CONNECTING A REMOTE 2-23
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2-9. CREATING A *Wireless Logger for Windows* SETUP FILE 2-26
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2-11. PLACING THE BASE STATION AND REMOTES 2-33
2-12. USING THE *Site Survey* FEATURE TO VERIFY OPERATIONS 2-33
2-13. CONNECTING HYDRA ANALOG AND DIGITAL LINES 2-35

INTRODUCTION 2-1.

This section contains the information needed to completely set up the Base Station (Host Computer and Base Station Wireless Modem) and Wireless Logger Remotes (Hydra and Remote Wireless Modem).

The following topics should be completed in sequence:

- Installing *Wireless Logger for Windows*
- Configuring the Base Station and Remote Modems
- Connecting a Base Station, Remote, and Local Hydra
- Creating a *Wireless Logger for Windows* Setup File
- Placing the Base Station and Remotes
- Using the *Site Survey* feature to Verify Operations
- Connecting Hydra Analog and Digital Lines

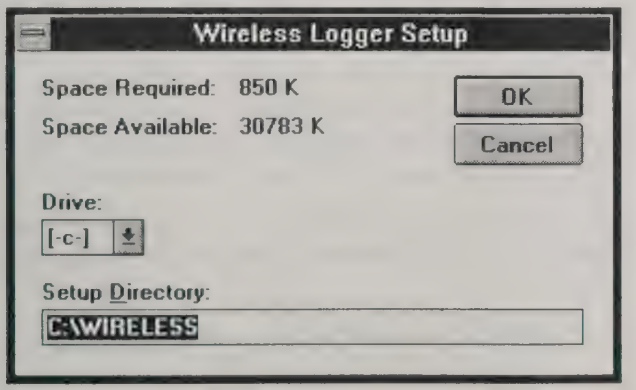
INSTALLING *Wireless Logger for Windows* 2-2.

Complete the following procedure to install *Wireless Logger for Windows.* A basic knowledge of MS-DOS and Windows operations is required. If any step is unfamiliar to you, refer to the DOS and/or Windows documentation.

1. Insert the *Wireless Logger for Windows* disk into the A disk drive. (If the B disk drive is used, modify this procedure accordingly.)

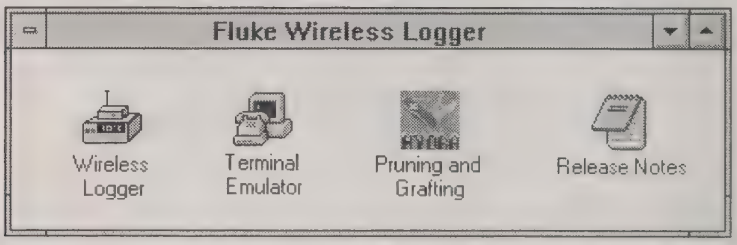
2. Select the Run... command from the File menu of the Windows Program Manager, opening the Run dialog box.

3. Type `a:\setup.exe` in the Command Line: box. Click OK, opening the Wireless Logger Setup dialog box (below).



4. Verify in the dialog box that Space Available: exceeds Space Required. If this is not the case, click Cancel and erase unneeded files on the selected drive, and repeat this procedure. The default drive and directory for the *Wireless Logger for Windows* files is `C:\WIRELESS`. Modify the Drive and Setup Directory to suit or accept the defaults and click OK.

5. Click OK in response to the Setup is Complete! message. A program group is created in Program Manager with four icons, as shown below.



CONFIGURING THE BASE STATION AND REMOTE MODEMS 2-3.

The procedures below configure the Base Station (Host Computer) and Remote (Hydra) wireless modems for operation. All modem procedures take place at the Host Computer. The Remote modems include the Base Station modem serial number as part of their configuration procedure. **If a Base Station modem is replaced in a network, all the associated Remote modems must be reconfigured to reflect the serial number of the new Base Station modem.**

The Base Station is the center of the network with radio links to the Remotes (Figure 2-1). To follow the convention of *Wireless Logger for Windows*, each Remote Hydra is identified as H1, H2, H3, etc. If there are several Base Stations, the Remote Hydra identifications are extended to include the associated Base Station, e.g., Base1/H1, Base1/H2, Base2/H3, etc. Each wireless modem is identified with a label (supplied) to indicate how the modem is configured (Base Station or Remote), plus the serial number and description of the modem. See Figure 2-2 for examples of modem labels.

Each modem has an internal Electrically Erasable Programmable Read Only Memory (EEPROM) device to store the Base Station or Remote modem configuration data.

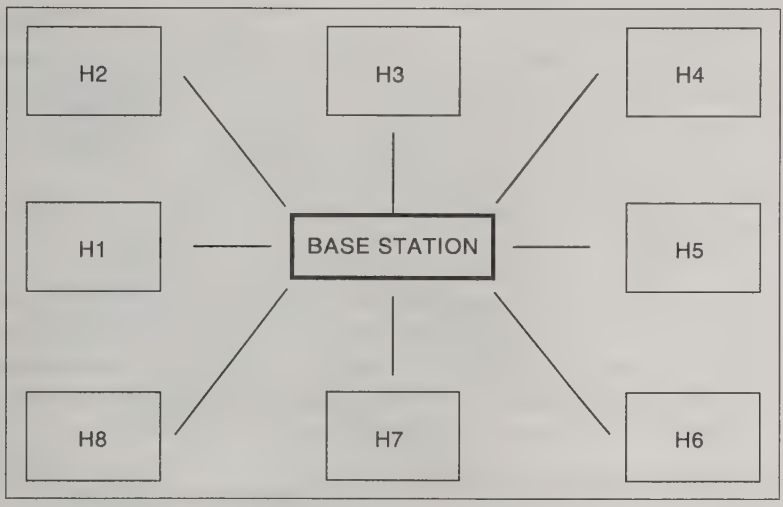


Figure 2-1. Base Station and Remote Networks

Base Station Modem	**Base Station Modem**
Serial Number 37253	Serial Number 36893
Description BASE1	Description BASE2
Remote Modem	**Remote Modem**
Serial Number 36651	Serial Number 39574
Description H1	Description H5
Remote Modem	**Remote Modem**
Serial Number 38311	Serial Number 36662
Description BASE1/H1	Description BASE2/H2

Figure 2-2. Examples of Modem Labels

Wireless modems have seven independent radio channels allowing seven separate Base Stations to operate in the same proximity without sharing a radio channel. For a single Base Station, the center radio channel – channel 4 – is normally used; for two Base Stations, channels 2 and 6 are selected; for three Base Stations, channels 1, 4, and 7, etc. Eight or more Base Stations requires radio channel sharing. Radio channel selections are made during modem configuration.

The wireless modems have two modes of operation: Operating and Configuration. The procedures below place the modem into the Configuration mode, make the parameter selections, and then "launch" the modem back to the Operating mode. Whenever a modem is powered up, it is automatically placed into the Operating mode. A modem must be launched into the Operating mode before use with *Wireless Logger for Windows*.

Configuring a Base Station Modem 2-4.

Complete the following procedure to configure a Base Station modem. Connect the modem to the Host Computer, as shown in Figure 2-3. All items, except for the Host Computer, are supplied with the 2625A/WL-700 Wireless Base Station Package (see Table 1-1). This procedure assumes the use of the Host Computer COM2 port. If COM1 is used instead of COM2, modify this procedure, as required. Before using COM3 or COM4, refer to "Connecting a Base Station" later in this section.

1. Connect the wireless modem to be configured as a Base Station modem to the Host Computer COM2 port using the modem RS-232 cable and DB25-to-DB9 adapter cable (if required).

   The gender of the host computer COM port is always male. If you are trying to connect to a port that is female, it is not a COM port.

2. Connect the modem power module into a 115V ac/60 Hz source and connect the power output cable to the Base Station modem 6-9V DC input. Verify that the modem PWR indicator is on (red) and not blinking.

   If the PWR light is blinking, the modem failed self-test and cannot be used. Terminate this procedure and refer to "Modem Error Codes" in Section 6 "Maintenance."

   If the PWR indicator does not light, check the power connections. If the connections are correct, either the power module or modem has failed. Repeat with a different power module or modem to localize the problem.

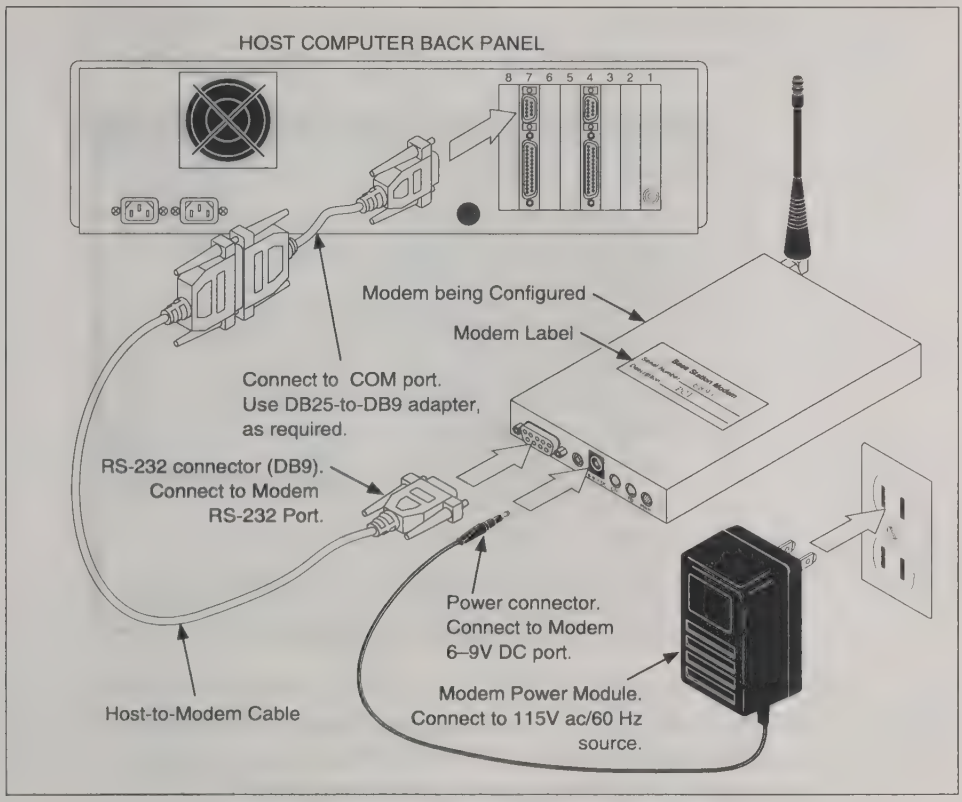


Figure 2-3. Connecting a Base Station

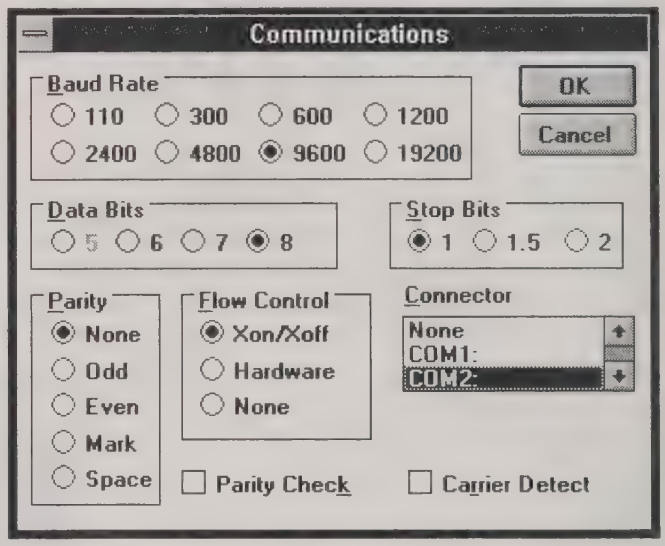
3. Assemble the antenna (see Figure 1-2) and connect it to the modem. Do not overtighten the connectors.

4. Apply a Base Station Modem label on the modem (Figure 2-2). Fill in the unique serial number (bbbbb) as recorded on the bottom of the modem, and describe the Base Station (e.g., Host1, Base1, etc.).

5. Open Terminal Emulator from the Fluke Wireless Logger group of Program Manager.

   If you receive a Select another port... message, COM2 is being used by another application. Close the other application and repeat this step, or open Terminal from the Accessories group of Program Manager.

6. Open Communications... from the Settings menu. Verify or make the selections shown below (modify COM, as required). Click OK.



7. Press the ENABLE/RESET button on the modem (see Figure 1-2). Verify that the terminal screen displays the modem configuration MAIN MENU (on the next page). Note that b b b b b is the Base Station modem serial number, and Radio Channel: 4 is the default.

   If meaningless characters appear, the communication settings are incorrect. Go back to step 6. Note that the baud rate must be 9600 for modem configuration procedures.

   If the MAIN MENU does not appear, check the cable connection. Verify that the modem is connected to the COM2 port.

   It is possible to have everything correct and not receive the modem configuration MAIN MENU if the COM2 port is internally redirected. For example, COM2 may be routed internally for a laptop computer communications modem disabling the external COM2 port. Other applications may make claim to COM2 such as a serial Mouse. When COM3 and COM4 ports are installed, they often share interrupts with COM1 and COM2, causing a hardware conflict. Try another COM port or resolve the COM port issue and return to this procedure.

```
                RF Modem V2.4
          by Proxim Inc., (c) 1990,91

                   MAIN MENU

  Serial #: b b b b b     Radio Channel: 4

      D - Display Parameters
      R - Reset Parameters to Defaults
      C - Change Radio Channel
      N - Network Configuration
      S - Serial Configuration
      A - Advanced Configuration
      L - Launch Operating Mode


      Enter Selection:
```

8. Verify that the serial number at the top of the MAIN MENU matches the serial number you recorded on the modem Base Station Modem label. Menu selections are made in upper or lower case letters, e.g., R or r. To exit any menu at any time, press the <Esc> key.

9. **D - Display Parameters**. Type D and press <Enter>. This screen summarizes the present modem configuration. When the modem parameters are reset (next step), the screen appears as shown below. Press <Enter> to continue.

```
                          PARAMETER SETTINGS
                            Serial #: bbbbb

Serial Port
-----------
          Operating Mode: Pass-Through            Delimiters: 13,10
               Echo Mode: Simple                  Max Length: 256
               Baud Rate: 9600                 Input Time-Out: Off

     XON/XOFF Generation: Disabled       XON/XOFF Recognition: Disabled
         CTS Generation: Disabled              DSR Generation: Disabled

Network
-------
           Radio Channel: 4                       Radio Speed: 121 KBaud
              Subchannel: 1                  Broadcast Address: 1

          Dest. Serial #: None             Lost Communication: Continue
         Serial # Filter: None                    Type Filter: None
```

10. **R – Reset Parameters to Defaults**. Type R and press <Enter>. Type Y and <Enter> in response to Reset to Default Settings? [Y or N].

NOTE

The remainder of this procedure assumes the modem has been reset to the default settings.

11. **C – Change Radio Channel**. Refer to the table below to select the radio channel for the Base Station. If you are setting up a single Base Station, radio channel 4 [default] has already been selected; continue to step 12.

    Two or more Base Stations operating in the same proximity use different radio channels. For example, configure one Base Station modem for channel 2, and the second for channel 6. Using adjacent channels or a single channel for two networks may increase transmission errors.

    Type C and press <Enter>. Type the channel number and press <Enter> in response to Enter Value [1-7].

		Radio Channel Number Selection						
		1	2	3	4	5	6	7
Number of Base Stations	1				X			
	2		X				X	
	3	X			X			X
	4	X		X		X		X
	5	X		X	X	X		X
	6	X	X	X		X	X	X
	7	X	X	X	X	X	X	X
Note: Reuse channels after seven networks have been used.								

12. **N – Network Configuration**. The default is correct.

13. **S – Serial Configuration**. This sets up the wireless modem RS-232 port. Type S and press <Enter>. Complete the menu selections shown in **bold**.

```
B – Baud Rate (9600)
    Set  Baud Rate
         Current Value: 9600
         Enter Value [1=1200, 2=2400, 3=4800, 4=9600, 5=19200]:  5 <Enter>
```

```
E – Echo Mode (Simple)
    Set  Echo Mode
         Current Value: Simple
         Enter Value [(S)imple, (T)erminal or (N)one]:  n <Enter>
```

F – Flow Control

FLOW CONTROL
X – Generate XON/XOFF (Disabled)
C – Generate CTS (Disabled)
D – Generate DSR (Disabled)
R – Recognize XON/XOFF (Disabled)
Enter Selection: **<Esc>** [defaults]

M – Maximum Line Length (256)
Maximum Line Length
Current Value: 256
Enter Value [1-576]: **300 <Enter>**

I – Input Time-out (Off)
Input Time-out
Current Value: Off
Enter Value [In 16ths of a second, 0 = Off]: **<Esc>** [default]

A – Add a Delimiter (13,10)
Delimiter to List
Current Value: 13,10
Enter Value [1-255]: **<Esc>** [default]

R – Remove a Delimiter (13, 10)
Remove Delimiter from List
Current Value: 13,10
Enter Value [1-255]: **13 <Enter>**

R – Remove a Delimiter (10)
Remove Delimiter from List
Current Value: 10
Enter Value [1-255]: **10 <Enter>**

After the submenu selections above are complete, the S - Serial Configuration menu appears as shown below: Press <Esc> to return to the MAIN MENU.

SERIAL PORT

B – Baud Rate (19200)
E – Echo Mode (None)
F – Flow Control
M – Maximum Line Length (300)
I – Input Time-out (Off)
A – Add a Delimiter (None)
R – Remove a Delimiter (None)

14. **A – Advanced Configuration**. Type A and press <Enter>. Complete the menu selections shown below in **bold**.

```
B – Broadcast Address (1)
    Set  Broadcast Address
         Current Value: 1
         Enter Value [Positive Integer]: b b b b b  <Enter>   [b b b b b is the
                                                               Base modem
                                                               serial number
                                                               (from step 4)]
```

```
E – Enable Broadcast
    Set  Dest. to Broadcast? [Y or N]  <Esc>  [default]
```

```
D – Dest. Serial # (None)
    Set  Dest. Serial #
         Current Value: Broadcast
         Enter Value [From Serial # Label]:  <Esc>  [default]
```

```
C – Subchannel (1)
    Set  Subchannel
         Current Value: 1
         Enter Value [0-65535]:  <Esc>  [default]
```

```
S – Serial # Filter (None)
    Set  Incoming Serial # Filter
         Current Value: None
         Enter Value [From Serial # Label, 0 = None]:  <Esc>  [default]
```

```
T – Type Filter (None)
    Set  Incoming Type Filter
         Current Value: None
         Enter Value [(D)irected, (B)roadcast or (N)one):  B <Enter>
```

```
L – Lost Communication (Continue)      [Toggles: Continue/Halt]
    Enter Selection:  [default]
```

```
O – Operating Mode (Pass-Through)      [Toggles: Pass-Through/Packetized]
    Enter Selection:  O <Enter>
O – Operating Mode (Packetized)
```

After the submenu selections are complete, the A - Advanced Configuration menu appears as follows. Press <Esc> to return to the MAIN MENU.

```
                    ADVANCED
B  –  Broadcast Address (b b b b b)  [B. S. S/N]
E  –  Enable Broadcast
D  –  Dest. Serial # (None)
C  –  Subchannel (1)
S  –  Serial # Filter (None)
T  –  Type Filter (Broadcast)
L  –  Lost Communication (Continue)
O  –  Operating Mode (Packetized)
```

15. **L - Launch Operating Mode.** Launching reviews the selected parameters and places the modem into the Operating mode.

    Type L and press <Enter>. The PARAMETER SETTINGS summary should agree with the figure shown below. Note that b b b b b is the Base Station Modem Serial Number; the Radio Channel depends on your selection in step 11; and the Radio Speed (121 KBaud) is not configurable.

    Refer to Table 2-1 to find the menu for making corrections, as required. If the parameters are correct, type Y and press <Enter> in response to Launch Operating Mode? [Y or N].

```
                        PARAMETER SETTINGS
                          Serial #: bbbbb

Serial Port
-----------
          Operating Mode: Packetized              Delimiters: None
               Echo Mode: None                    Max Length: 300
               Baud Rate: 19200                Input Time-Out: Off

     XON/XOFF Generation: Disabled       XON/XOFF Recognition: Disabled
          CTS Generation: Disabled              DSR Generation: Disabled

Network
-------
           Radio Channel: 4                         Radio Speed: 121 KBaud
              Subchannel: 1                   Broadcast Address: bbbbb

          Dest. Serial #: None              Lost Communication: Continue
         Serial # Filter: None                     Type Filter: Broadcast
```

Table 2-1. Wireless Modem Parameters and Menus

Parameter	Menu Location
Serial Port	
Operating Mode:	Advanced Configuration/Operating Mode
Echo Mode:	Serial Configuration/Echo Mode
Baud Rate:	Serial Configuration/Baud Rate
XON/XOFF Generation:	Serial Configuration/Flow Control
CTS Generation	Serial Configuration/Flow Control
Delimiters:	Serial Configuration/Add a Delimiter Serial Configuration/Remove a Delimiter
Max Length:	Serial Configuration/Maximum Line Length
Input Time-Out:	Serial Configuration/Input Time-Out
XON/XOFF Recognition:	Serial Configuration/Flow Control
DSR Generation:	Serial Configuration/Flow Control
Network	
Radio Channel:	Main Menu/Change Radio Channel
Subchannel:	Advanced Configuration/Subchannel
Dest. Serial #:	Advanced Configuration/Dest. Serial #
Serial # Filter:	Advanced Configuration/Serial # Filter
Radio Speed:	[This is not a configurable parameter]
Broadcast Address:	Advanced Configuration/Broadcast Address
Lost Communication:	Advanced Configuration/Lost Communication
Type Filter:	Advanced Configuration/Type Filter

16. This completes the configuration of the Base Station modem. Choose one of the following:

- Continue to the "Configuring a Remote Modem" procedure.
- Select the Exit command from the File menu to exit the Terminal mode. Click No if there is a ... save the changes ... message.

Configuring a Remote Modem 2-5.

Complete the following procedure to configure a Remote modem. Connect the modem to the Host Computer for configuration, as shown in Figure 2-3.

1. Connect the wireless modem to be configured as a Remote modem to the Host Computer COM2 port using the modem RS-232 cable and DB25-to-DB9 adapter cable (if required).

   The gender of the host computer COM port is always male. If you are trying to connect to a port that is female, it is not a COM port.

2. Connect the modem power module into a 115V ac/60 Hz power source and connect the power output cable to the Remote modem 6-9V DC input. Verify that the modem PWR indicator is on (red) and does not blink.

   If the PWR light is blinking, the modem failed self-test and cannot be used. Terminate this procedure and refer to "Modem Error Codes" in Section 6 "Maintenance."

   If the PWR indicator does not light, check the power connections. If the connections are correct, either the power module or modem has failed. Repeat with a different power module or modem to localize the problem.

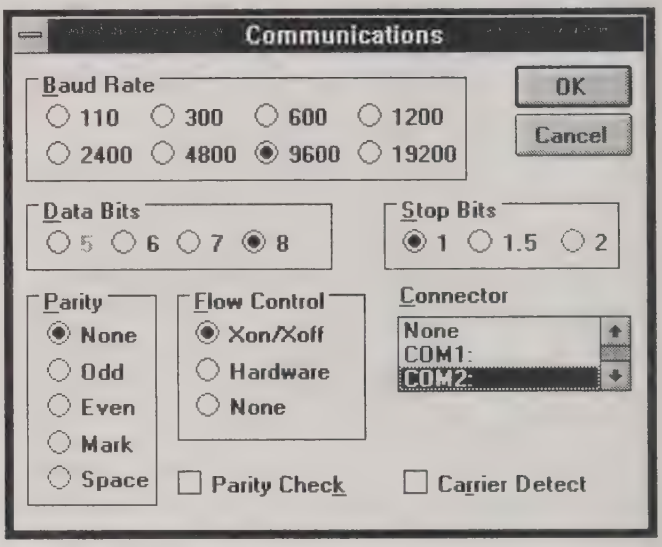
3. Assemble the antenna (see Figure 1-2) and connect it to the modem. Do not overtighten the connectors.

4. Apply a Remote Modem label on the modem (Figure 2-2). Fill in the unique serial number (r r r r r) as recorded on the bottom of the modem, and describe the Remote (e.g., H1, Base1/H1, etc.).

5. If you are already in the Terminal Emulator accessory, continue to step 7. Otherwise, open Terminal Emulator from the Fluke Wireless Logger group of Program Manager.

   If you receive a Select another port... message, COM2 is being used by another application. Close the other application and repeat this step, or open Terminal directly from the Accessories group of Program Manager.

6. Open Communications... from the Settings menu. Verify or make the selections shown below (modify COM, as required). Click OK.



7. Press the ENABLE/RESET button on the modem (see Figure 1-2). Verify that the terminal screen displays the modem configuration MAIN MENU (below). Note that rrrrr is the Remote modem serial number, and Radio Channel: 4 is the default.

   If meaningless characters appear, the communication settings are incorrect. Go back to step 6. Note that the baud rate must be 9600 for modem configuration procedures.

   If the MAIN MENU display does not appear, check the cable connection. Verify that the modem is connected to the COM2 port.

   It is possible to have everything correct and not receive the modem configuration menu if the COM2 port is internally redirected. For example, COM2 may be routed internally for a laptop computer communications modem disabling the external COM2 port. Other applications may make claim to COM2 such as a serial Mouse. When COM3 and COM4 ports are installed, they often share interrupts with COM1 and COM2, causing a hardware conflict. Try another COM port or resolve the COM port issue and return to this procedure.

```
                RF Modem V2.4
          by Proxim Inc., (c) 1990,91

                   MAIN MENU

  Serial #: rrrrr        Radio Channel: 4

      D - Display Parameters
      R - Reset Parameters to Defaults
      C - Change Radio Channel
      N - Network Configuration
      S - Serial Configuration
      A - Advanced Configuration
      L - Launch Operating Mode


      Enter Selection:
```

8. Verify that the serial number at the top of the MAIN MENU matches the serial number you recorded on the Remote Modem label. Menu selections are made in upper or lower case letters, e.g., R or r. To exit any menu at any time, press the <Esc> key.

9. **D - Display Parameters**. Type D and press <Enter>. This screen summarizes the present modem configuration. When the modem parameters are reset (next step), the screen appears as shown below. Press <Enter> to continue.

```
                          PARAMETER SETTINGS
                            Serial #: rrrrr

Serial Port
-----------
          Operating Mode: Pass-Through              Delimiters: 13,10
              Echo Mode: Simple                     Max Length: 256
              Baud Rate: 9600                  Input Time-Out: Off

     XON/XOFF Generation: Disabled        XON/XOFF Recognition: Disabled
         CTS Generation: Disabled               DSR Generation: Disabled

Network
-------
           Radio Channel: 4                          Radio Speed: 121 KBaud
              Subchannel: 1                    Broadcast Address: 1

          Dest. Serial #: None                 Lost Communication: Continue
        Serial # Filter: None                        Type Filter: None
```

10. **R – Reset Parameters to Defaults**. Type R and press <Enter>. Type Y and <Enter> in response to Reset to Default Settings? [Y or N].

NOTE

The remainder of this procedure assumes the modem has been reset to the default settings.

11. **C – Change Radio Channel**. Enter the identical radio channel used by the Base Station modem for this network. The default is channel 4.

12. **N – Network Configuration**. The default is correct.

13. **S – Serial Configuration**. This sets up the parameters for the wireless modem RS-232 port. Type S and press <Enter>. Complete the menu selections shown below in **bold**.

```
B – Baud Rate (9600)
    Set  Baud Rate
         Current Value: 9600
         Enter Value [1=1200, 2=2400, 3=4800, 4=9600, 5=19200]:  <Esc>
```

```
E – Echo Mode (Simple)
    Set  Echo Mode
         Current Value: Simple
         Enter Value [(S)imple, (T)erminal or (N)one]:  n <Enter>
```

```
F – Flow Control
                    FLOW CONTROL
              X – Generate XON/XOFF (Disabled)
              C – Generate CTS (Disabled)
              D – Generate DSR (Disabled)
              R – Recognize XON/XOFF (Disabled)
              Enter Selection:  x <Enter> <Esc>
```

```
M – Maximum Line Length (256)
    Maximum Line Length
    Current Value: 256
    Enter Value [1-576]:  300 <Enter>
```

```
I – Input Time-out (Off)
    Input Time-out
    Current Value: Off
    Enter Value [In 16ths of a second, 0 = Off]:  <Esc>  [default]
```

```
A – Add a Delimiter (13,10)
    Delimiter to List
         Current Value: 13,10
         Enter Value [1-255]:  <Esc>  [default]
```

R – Remove a Delimiter (13, 10)
Remove Delimiter from List
Current Value: 13,10
Enter Value [1-255]: **13 <Enter>**

After the submenu selections above are complete, the S - Serial Configuration menu appears as shown below. Press <Esc> to return to the MAIN MENU.

SERIAL PORT

B – Baud Rate (9600)
E – Echo Mode (None)
F – Flow Control
M – Maximum Line Length (300)
I – Input Time-out (Off)
A – Add a Delimiter (10)
R – Remove a Delimiter (10)

14. **A – Advanced Configuration**. Type A and press <Enter>. Complete the menu selections shown in **bold**.

B – Broadcast Address (1)
Set Broadcast Address
Current Value: 1
Enter Value [Positive Integer]: **b b b b b <Enter>**
[**b b b b b** is the associated Base Station serial number, not this modem serial number]

E – Enable Broadcast
Set Dest. to Broadcast? [Y or N] **y <Enter>**

D – Dest. Serial # (Broadcast)
Set Dest. Serial #
Current Value: Broadcast
Enter Value [From Serial # Label]: **<Esc>** [default]

C – Subchannel (1)
Set Subchannel
Current Value: 1
Enter Value [0-65535]: **<Esc>** [default]

S – Serial # Filter (None)
Set Incoming Serial # Filter
Current Value: None
Enter Value [From Serial # Label, 0 = None]: **b b b b b <Enter>**
[**b b b b b** is the associated Base Station serial number, not this modem serial number]

T – Type Filter (None)
Set Incoming Type Filter
Current Value: None
Enter Value [(D)irected, (B)roadcast or (N)one]: **D <Enter>**

L – Lost Communication (Continue) [Toggles: **Continue/Halt**]
Enter Selection: [default]

O – Operating Mode (Pass-Through) [Toggles: **Pass-Through/Packetized**]
Enter Selection: [default]

After the submenu selections are complete, the A - Advanced Configuration menu appears as shown below: Press <Esc> to return to the MAIN MENU.

ADVANCED

B – Broadcast Address (b b b b b) [B. S. S/N]
E – Enable Broadcast
D – Dest. Serial # (Broadcast)
C – Subchannel (1)
S – Serial # Filter (b b b b b) [B. S. S/N]
T – Type Filter (Directed)
L – Lost Communication (Continue)
O – Operating Mode (Pass-Through)

15. **L - Launch Operating Mode.** Launching reviews the selected parameters and places the modem into the Operating mode.

    Type L and press <Enter>. The PARAMETER SETTINGS summary should agree with the figure shown below. Note that r r r r r is the Remote Modem Serial Number, b b b b b is the associated Base Station Modem serial number; the Radio Channel matches the setting for the associated Base Station; and the Radio Speed (121 KBaud) is not configurable.

    Refer to Table 2-1 to find the menu for making corrections, as required. If the parameters are correct, type Y and press <Enter> in response to Launch Operating Mode? [Y or N].

```
                          PARAMETER SETTINGS
                            Serial #: rrrrr

Serial Port
-----------
          Operating Mode: Pass-Through          Delimiters: 10
               Echo Mode: None                  Max Length: 300
               Baud Rate: 9600                Input Time-Out: Off

     XON/XOFF Generation: Enabled       XON/XOFF Recognition: Disabled
          CTS Generation: Disabled           DSR Generation: Disabled

Network
-------
           Radio Channel: 4                      Radio Speed: 121 KBaud
              Subchannel: 1                  Broadcast Address: bbbbb

           Dest. Serial #: Broadcast      Lost Communication: Continue
         Serial # Filter: bbbbb                    Type Filter: Directed
```

16. The Remote modem is now configured for operation. Set the modem aside for use when completing "Connecting the Remotes," below.

    Repeat this procedure for each Remote modem. All Remote modems associated with a particular Base Station are configured identically. Note that the remote modem serial number, r r r r r (not used in this procedure) is used when configuring *Wireless Logger for Windows* software.

    When the configuration of all the Remote modems is complete, select the Exit command from the File menu to exit the Terminal Emulator accessory. Click No if there is a ... save the changes ... message.

CONNECTING A BASE STATION 2-6.

Complete the following procedure to connect a Base Station, as shown in Figure 2-3. This is the same connection used for configuring the modems. All items are supplied with the 2625A/WL-700 Wireless Base Station Package. (See Table 1-1.) This procedure assumes the use of the Host Computer COM2 port. If neither COM1 nor COM2 are available, analyze the hardware configuration of your Host Computer for alternatives because COM3 and COM4 (if installed) often share interrupts with COM1 and COM2 and may not be suitable for connecting a Base Station.

1. Connect the configured modem with the Base Station label to the Host Computer COM2 port using the modem RS-232 cable and DB25-to-DB9 adapter cable (if required).

   The gender of the host computer COM port is always male. If you are trying to connect to a port that is female, it is not a COM port.

2. Connect the modem power module into a 115V ac/60 Hz power source and connect the power output cable to the Base Station modem 6-9V DC input connector. Verify that the modem PWR indicator is on (red) and does not blink.

   If the PWR light is blinking, the modem failed self-test and cannot be used. Terminate this procedure and refer to "Modem Error Codes" in Section 6 "Maintenance."

   If the PWR indicator does not light, check the power connections. If the connections are correct, either the power module or modem has failed. Repeat with a different power module or modem to localize the problem.

3. Record the Base Station serial number and description inside the rear cover of this manual.

4. Position the modem at least 1 foot (30 cm) away from adjacent objects, in particular, metal partitions.

CONNECTING A REMOTE 2-7.

Complete the following procedure to connect a Remote, as shown in Figure 2-4. Use the items supplied with the 2625A/WL Wireless Logger, or if converting an existing Hydra, use the items with the 26X5A/WL-701 Hydra Conversion Kit (see Table 1-1). Repeat this procedure for each Remote.

1. Position the components in the Hydra soft case, as shown in Figure 2-4. After the case is secured, it appears as shown in Figure 2-5.

2. Connect the Remote modem to the Hydra using the short RS-232 cable. The modem should have a Remote Modem label with the modem serial number and description (e.g., H1).

3. Connect the modem power module into a 115V ac/60 Hz power source using the dual line cord and connect the power output cable to the Remote modem 6-9V DC input connector. Verify that the modem PWR indicator is on (red) and does not blink.

   If the PWR light is blinking, the modem failed self-test and cannot be used. Terminate this procedure and refer to "Modem Error Codes" in Section 6 "Maintenance."
   If the PWR indicator does not light, check the power connections. If the power connections are correct, either the power module or modem has failed. Repeat with a different power module or modem to localize the problem.

4. Record the serial number and description of the Remote modem inside the rear cover of this manual.

5. Connect the Hydra into a 115V ac/60 Hz power source using the other connector on the dual line cord. Apply power to the Hydra and configure the RS-232 communications port at the front panel by pressing [SHIFT] then [LIST], then press the up/down arrow keys and [ENTER] to select 9600 bAUd, no PAR, OFF CtS (2635A Data Bucket only), and OFF Echo.

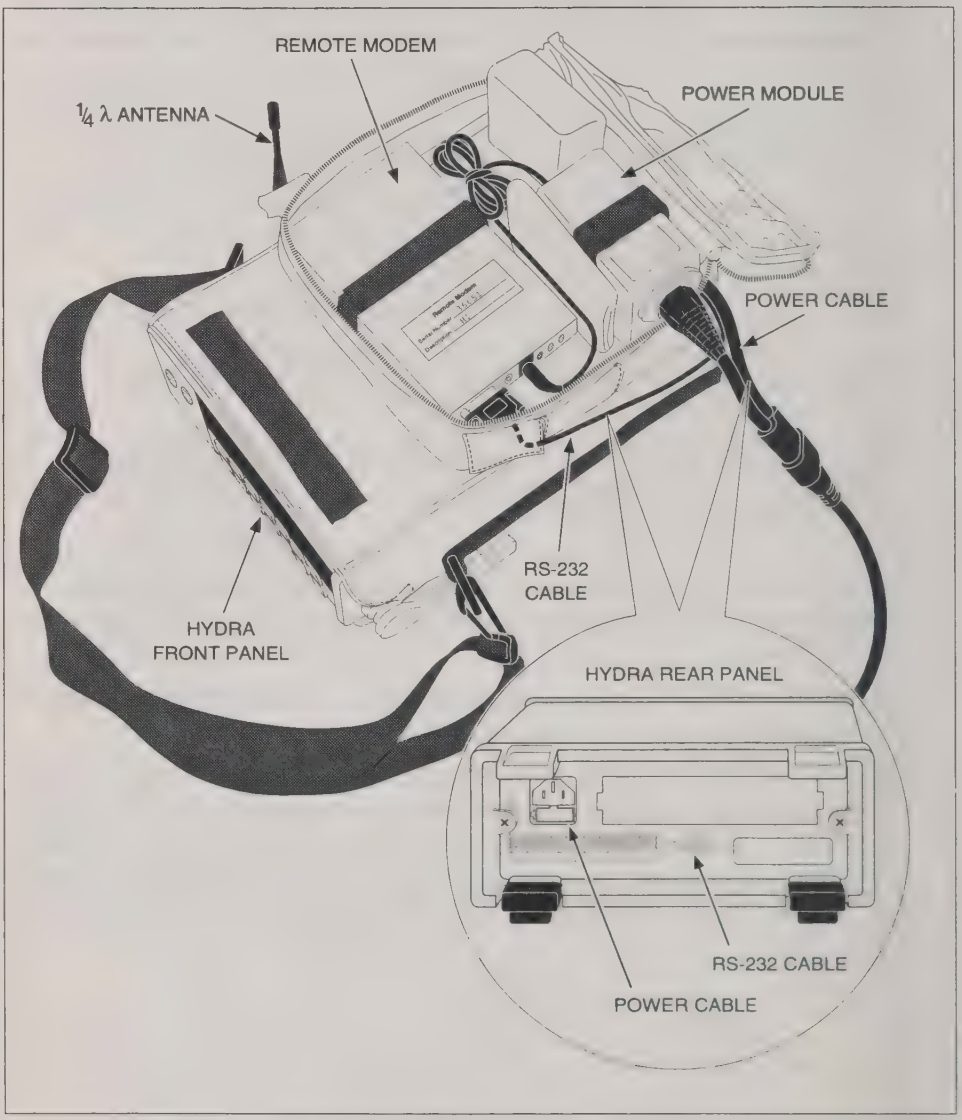


Figure 2-4. Connecting a Remote

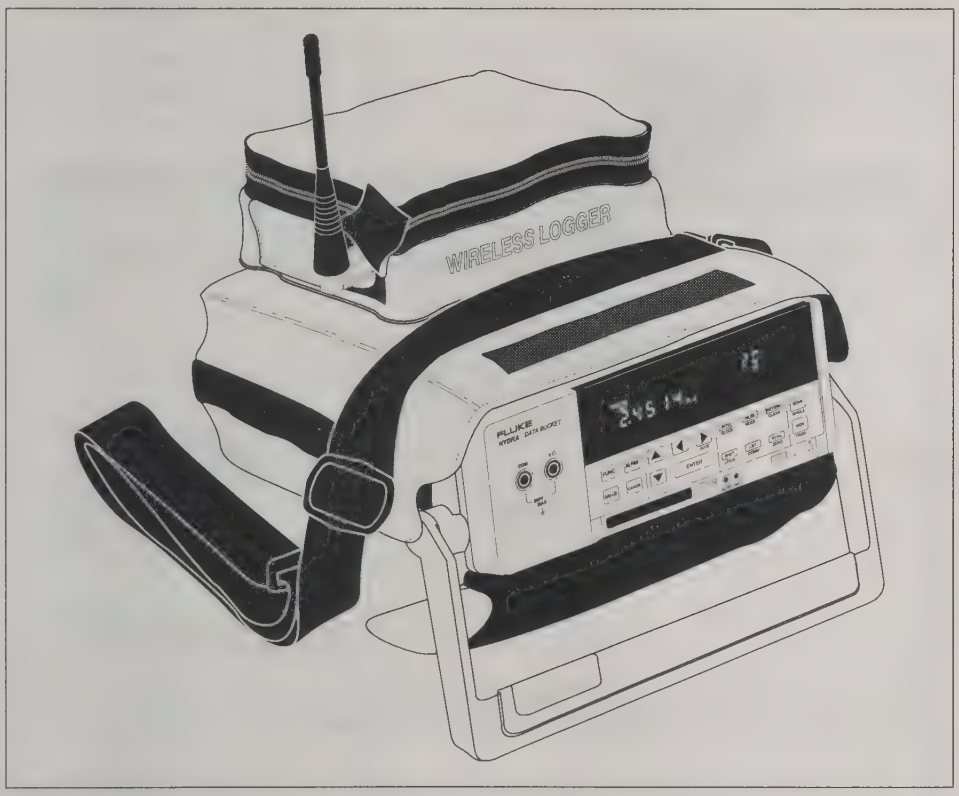


Figure 2-5. A Remote Ready for Placement

CONNECTING A LOCAL HYDRA 2-8.

Complete the following procedure to connect a Local Hydra, as shown in Figure 2-6. This procedure assumes the use of the Host Computer COM1 port. If COM1 is not available, analyze the hardware configuration of your Host Computer for alternatives because COM3 and COM4 (if installed) often share interrupts with COM1 and may not be suitable for connecting a Base Station.

1. Connect the Hydra to the Host Computer COM1 port using the RS40 cable supplied in the 2625A/WL-700 Wireless Base Station Package. The cable has "RS40" stamped on the connectors. Use a DB25-to-DB9 adapter as required.

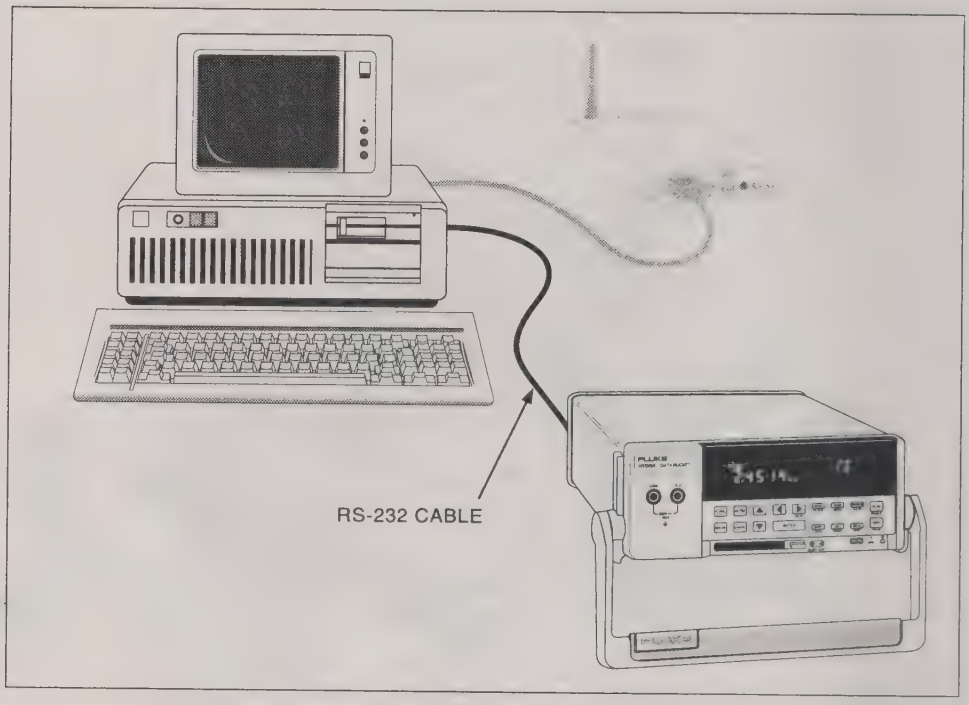


Figure 2-6. Connecting a Local Hydra

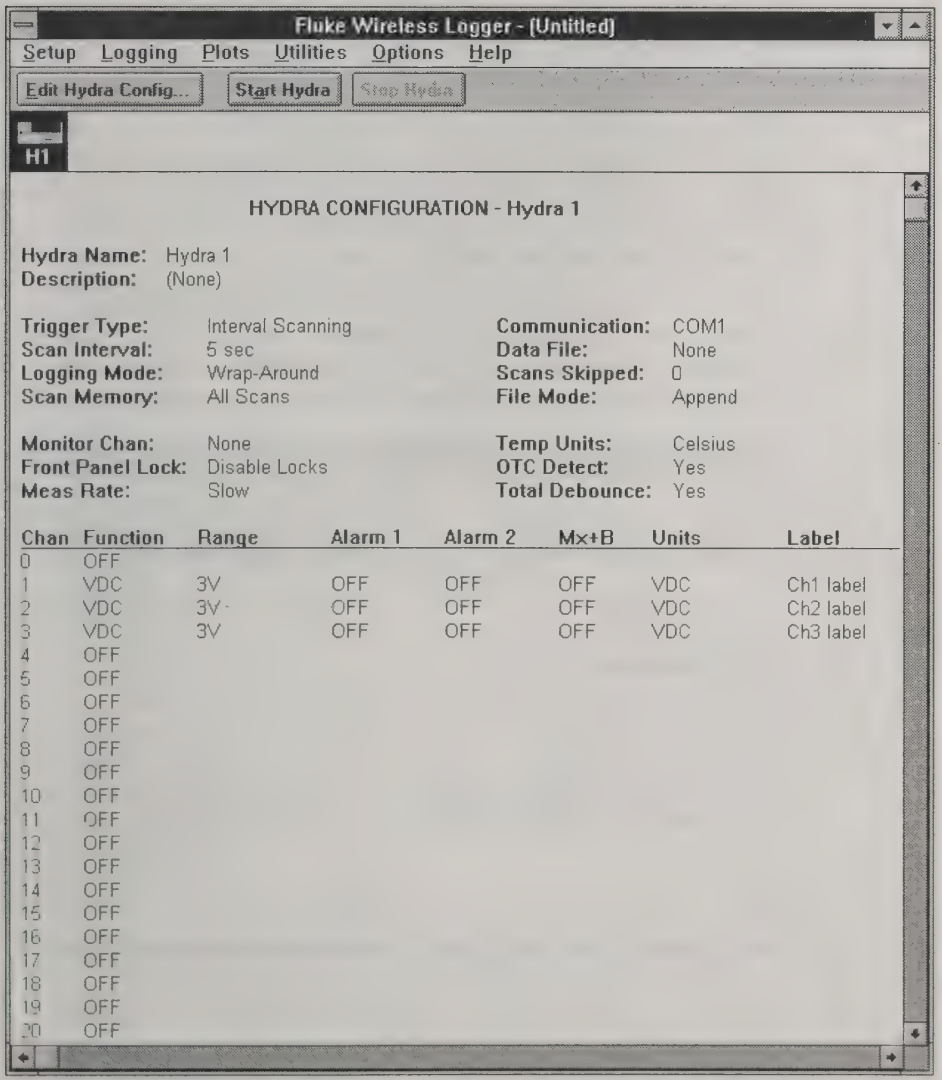
2.. Apply power to the Hydra and configure the RS-232 communications port at the front panel by pressing [SHIFT] then [LIST], then the up/down arrow keys and [ENTER] to select 9600 bAUd (19200 for the 2635A) , no PAR, OFF CtS (2635A only), and OFF Echo.

CREATING A *Wireless Logger for Windows* SETUP FILE 2-9.

Complete the following procedure to create a *Wireless Logger for Windows* setup file for the Base Station and Remote (and Local Hydra) communication parameters. The other segments of the setup file, including Hydra configurations, channel function, scan interval, alarms, scaling, etc., are discussed in Section 3 "Using *Wireless Logger for Windows*."

1. Position all the Remotes close to the Base Station, and connect the Local Hydra (if used). Power all Hydras and Remote modems.

2. Open *Wireless Logger* from the *Fluke Wireless Logger* group. The application opens to the Main Window (below). The top bar shows the name of the active setup file. When the application is first opened, the top bar reads Fluke Wireless Logger - [Untitled].

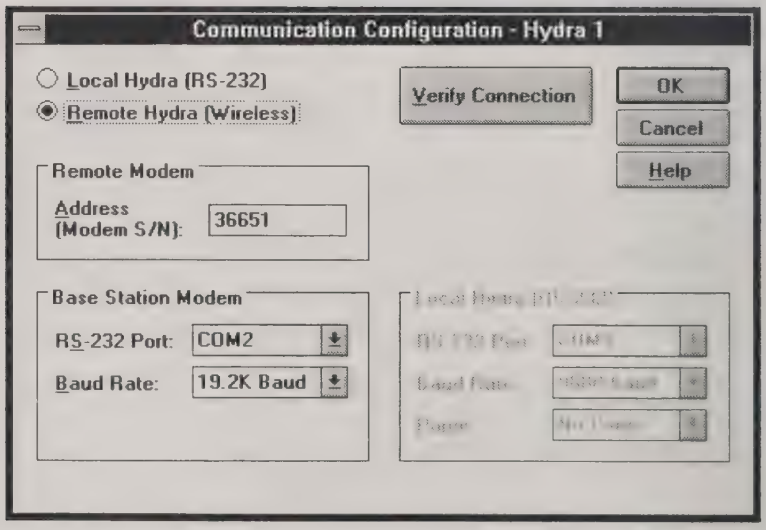


3. Save the current setup (default) to a file by selecting the Save Logger Setup As... command from the Setup menu. Type `SETUP.STP` for the file name and click OK. Verify the top bar changes to Fluke Wireless Logger - SETUP.STP.

4. The default is one Hydra icon. Select the Create New Hydra command from the Setup menu if there is more than one Hydra for your setup. Repeat until the correct number of Hydra icons is displayed.

5. Associate each Hydra icon (H1, H2, H3, etc.) with a Remote (and one icon with the Local Hydra, if used). Click the desired Hydra icon, then click the Edit Hydra Config... button to open the Hydra Configuration dialog box. Click the Communications... button to open the Communication Configuration dialog box.

6. Establish if the Hydra being configured is the Local Hydra [RS-232] or a Remote Hydra [Wireless], then proceed to one of the following procedures. An example of setting the communication parameters for Hydra 1 as a Remote with serial number 36651 is shown below.



- Local Hydra – At the upper left, select Local Hydra (RS-232). In the Local Hydra (RS-232) group, select COM1 (if COM1 is not selected for the Local Hydra, see Section 2 "Connecting a Local Hydra"), 9600 Baud (19.2K Baud for the 2635A Data Bucket), and No Parity.

- Remote Hydra –At the upper left corner, select Remote Hydra (Wireless). In the Address (Modem S/N): box of the Remote Modem group, enter the Remote modem serial number for the selected Hydra icon. In the Base Station Modem group, select COM2 (if COM2 is not selected for the Base Station modem, see Section 2 "Connecting the Base Station"), and 19.2K Baud.

7. Click the Verify Connection button to test the communications between the Host Computer and the Hydra.

   A Connection Successful! return indicates that the communication parameters between the Base Station and Remote (or Local Hydra) are correct. Click OK in the dialog box and continue to step 8.

   A ! return and error message indicates that the communication parameters are not configured correctly, or that not all the connections have been made successfully. Click OK in the dialog box and go directly to the "Quick Check" paragraph below to resolve the problem. Do not continue with this procedure and do not close the dialog box.

8. Click OK in the Communication Configuration menu and OK in the Hydra Configuration menu to return to the Main Window. If this is the last Hydra icon to configure, continue to step 9; otherwise, repeat steps 5 through 8 for each of the remaining Hydra icons.

9. Select the Save Logger Setup command from the Setup menu to save the configuration parameters in the `SETUP.STP` file.

Quick Check 2-10.

Quick Check locates communication problems between the Base Station, Remotes, and Local Hydras when Verify Connection fails in step 7 of "Creating a *Wireless Logger for Windows* Setup File." When Verify Connection fails, a message box contains a message indicating the problem area. Refer to Table 2-3 for suggestions when a communications difficulty occurs between the Base Station and a Remote. Refer to Table 2-4 for suggestions when a communications difficulty occurs between the Base Station and a Local Hydra.

Table 2-3. Quick Check and the Remote Hydra (Wireless)

Dialog Box Message	Comment	Action
Hydra n: Unable to initialize communications port! The Host Computer COM port is not responding.	The COM port does not exist.	Check your Host Computer for the COM port configuration and select a different COM port.
	The COM port is being used by other hardware or application, e.g., the **Terminal** accessory.	Check what other applications are running or what hardware is currently active and clear the COM port for use with the Wireless Logger tool.
Hydra n: Time-out waiting for Base Station Modem! The Host Computer is unable to communicate with the Base Station modem.	The Base Station modem is not powered or has failed.	The Base Station modem **PWR** light must be on and not blinking.
	The Base Station modem RS-232 parameters and the Host Computer RS-232 parameters do not match.	Check the RS-232 parameters for the Host Computer (Communications Configuration dialog box), and the Base Station modem using the modem configuration setup.
	The Base Station modem is configured incorrectly, e.g., the Broadcast Address or Operation Mode.	Use the modem configuration setup to check the Base Station modem parameters.
	The Base Station modem has not been "launched" into the Operating mode.	Remove and then apply power to the Base Station modem.
	The RS-232 cable between the Host Computer and Base Station modem is defective.	Use the supplied cable or other known good cable. In rare instances, a cable may fail. Try another cable.
Hydra n: RS-232 Communication Error! There is an incompatibility in the Base Station modem setup.	The Base Station modem configuration is incorrect.	Check the Base Station modem parameters.
	The Base Station modem is not powered.	Apply power to the Base Station Modem.
	The Base Station modem is not "launched."	Remove modem power and then apply power to launch.
	There is a hardware conflict for the COM port (internal modem, serial mouse, etc.).	Resolve the hardware conflict to make the COM port fully available.

Table 2-3. Quick Check and the Remote Hydra (Wireless) (cont)

Dialog Box Message	Comment	Action
Hydra n: RF Transmission Failure! The Base Station transmitted but the Remote never responded.	The Remote modem is not powered or has failed.	The Remote modem **PWR** light must be on and not blinking.
	The Remote modem is configured for a different Base Station.	The swapping of Remote modems between networks will not work. Each Remote modem is configured for a particular Base Station.
	The Remote modem is configured incorrectly (wrong radio channel, operating mode, etc.).	Use the modem configuration setup to check the Remote modem parameters.
	The Remote modem is out of range.	If the Remote is not adjacent to the Host Computer, bring the modem next to the Host to eliminate range as a factor in testing.
Hydra n: Time-out waiting for Hydra! The Base Station modem was able to communicate with the Remote modem, but the Remote modem was unable to communicate with the Hydra.	The Hydra power is off or has failed self-test.	Power the Hydra and verify there are no error codes displayed during self-test.
	The Remote modem RS-232 parameters and the Hydra RS-232 parameters do not match.	Check the RS-232 parameters for the Hydra using the front panel [Shift] [List] and [Enter] keys, and the Remote modem using the modem configuration setup. They must match.
	The Remote modem is configured incorrectly, e.g., the Broadcast Address or Operation Mode has the wrong selection.	Use the modem configuration setup to check the Remote modem parameters.
	The RS-232 cable between the Remote modem and the Hydra is defective.	Use the supplied cable or other known good cable. In rare instances, a cable may fail. Try another cable.
Hydra n: Unsupported model or version of Hydra!	The Hydra is not a 2625A Data Logger or a 2635A Data Bucket.	Connect the correct model Hydra. The 2625A must use software version 5.5 or higher (see Hydra Manual).

Table 2-4. Quick Check and the Local Hydra (RS-232)

Dialog Box Message	Comment	Action
Hydra n: Unable to initialize communications port! The Host Computer COM port is not responding.	The COM port does not exist.	Check your Host Computer for its COM port configuration and select a different COM port.
	The COM port is being used by other hardware or application, e.g., the **Terminal** accessory.	Check what other applications are running or what hardware is currently active and clear the COM port for use with the Wireless Logger tool.
Hydra n: RS-232 Communication Error! The RS-232 parameters do not match those in the Communication Configuration dialog box.	**Parity** is selected in **Local Hydra [RS-232]**, or the baud rate does not match.	Other parity or baud selections cause RS-232 communication errors.
	Host Computer may be running other applications using the same COM port.	If COM1 and COM3/COM4 share an interrupt, errors may occur. Stop other applications to verify.
	There is a hardware conflict for the COM port (internal modem, serial mouse, etc.).	Resolve the hardware conflict to make the COM port fully available.
Hydra n: Time-out waiting for Hydra! The Host Computer is unable to communicate with the Local Hydra.	The Hydra is unpowered, failed self-test, or the RS-232 cable is disconnected.	Power Hydra, look for a self-test error display, or attach the RS-232 cable.
	The Host Computer RS-232 parameters and the Hydra RS-232 parameters do not match.	Check the RS-232 **Local Hydra (RS-232)** parameters at the Host Computer; at the Hydra using [Shift] [List] and [Enter] keys.
	Other applications are running and trying to use COM1 at the same time.	Temporarily use COM2 (change **Local Hydra (RS-232)** settings) to verify.
	Verify that Hydra is connected to the Host Computer COM1 port.	Connection to COM3/COM4 may have interrupt conflicts. COM2 is reserved for wireless modem.
Hydra n: Unsupported model or version of Hydra!	The Hydra is not a 2625A Data Logger or a 2635A Data Bucket.	Connect the correct model Hydra. The 2625A must use software version 5.5 or higher (see Hydra Manual).

PLACING THE BASE STATION AND REMOTES 2-11.

After completing the procedure under "Creating a *Wireless Logger for Windows* Setup File," place the Remotes in their working locations, and position the Base Station. Observe the following guidelines:

- **Centrally Locate the Base Station**. The nominal range for a non-line-of-sight Base Station/Remote communications link is 500 to 800 feet (150 to 240 meters). Choose a Base Station location that is central to the Remotes for equal radio coverage, while not exceeding the 800 foot limit.
- **Avoid Radio Signal Barriers between the Base Station and Remotes**. Avoid radio signal barriers such as metal partitions, concrete floors with metal reinforcing bars or metal pans. Line-of-sight communications is superior whenever possible.
- **Position the Remotes near a Source of Primary Power**. Although both the Hydra and modem can operate from dc sources of power (9 to 12V dc for the Hydra, and 6.5 to 9.5V dc for the wireless modem) most installations involve connection to a 115V ac/60 Hz sources of power. Position the Hydra near a source of ac power whenever possible.
- **Position the Remotes near the Measurement Locations**. The proximity of the Remote to the source of measurement inputs should be considered when placing the Remote.

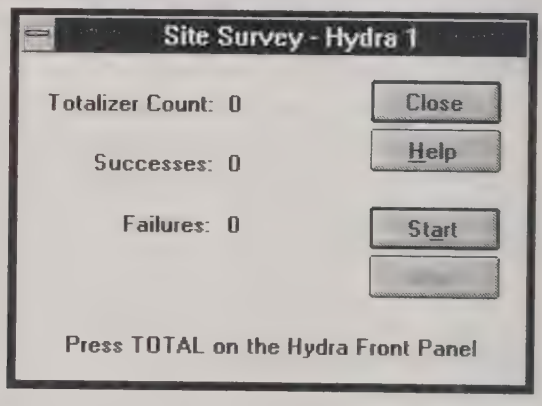
USING THE *Site Survey* FEATURE TO VERIFY OPERATIONS 2-12.

The *Site Survey* feature of *Wireless Logger for Windows* verifies the communications path between the positioned Base Station and the located Remotes. This procedure assumes all Remotes are powered and have been successfully operated in close proximity to the Base Station before being placed in their operating location.

Complete the following procedure to use *Site Survey*.

1. Open Wireless Logger from the Fluke Wireless Logger group of Program Manager.
2. Select the Load Logger Setup command from the Setup menu and enter the desired setup file, e.g., `SETUP.STP`. Click OK.
3. Click the Hydra icon for the Remote to be verified. For example, Hydra/H1. If you are not using a mouse, press <Tab>, select the Hydra icon with the cursor keys, then press <Enter>.

4. Select the Site survey command from the Utilities menu, opening the following menu:



5. Click the Start button in the Site Survey dialog box. Communication between the Base Station and the selected Remote is indicated by the Successes count incrementing at approximately the same rate as the Totalizer Count. Occasional Failures are not unusual.

   At the Hydra, press the [TOTAL] key and watch for a steadily increasing totalizer count. An occasional missing count is not unusual.

   Frequent or steady Failures indicates poor communications between the Base Station and Remote. Reposition the Remote and/or the Base Station and repeat steps 3 through 5.

   [Hint: Power the Remote with batteries to provide maximum Remote portability. The Hydra connects to a 9 to 12V dc supply via a rear panel connector. (See your Hydra manual.) The wireless modem connects to a 9V dc supply using a standard 5.0mm outside-diameter/2.5mm inside-diameter power plug. A Wireless Logger DC Power Kit to power the Hydra and modem is available as an option. (See "Options and Accessories" in Section 1.) The absolute maximum dc input for the wireless modem is 9.5V DC.]

CONNECTING HYDRA ANALOG AND DIGITAL LINES 2-13.

Following the final positioning of the Remotes, connect the measurement lines, ALARM OUTPUTS, and DIGITAL I/O lines as described in the following Hydra manuals:

- **2625A Hydra Data Logger**. *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket**. *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

Section 3
Using
Wireless Logger for Windows

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INTRODUCTION 3-1.

This section describes how to operate *Wireless Logger for Windows*. The operating procedures assume you have a working knowledge of Hydra parameters, described in the following Hydra manuals:

- **2625A Hydra Data Logger**. *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket**. *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

On-line Help also describes Hydra parameters and *Wireless Logger for Windows* features. To access Help, press the <F1> key at any time, or click any Help button. A summary of all *Wireless Logger for Windows* features and menus is provided in Section 4 "*Wireless Logger for Windows* Reference."

This section assumes you have completed "Creating a *Wireless Logger for Windows* Setup File" in Section 2 and the Base Station and Remote network is operational.

The following topics are covered in this section:

- **Hydra Configuration Procedures**. How to enter, save, download, upload, and print Hydra configuration data.
- **Logging Operations**. Starting and stopping the Hydras, using DDE, monitoring and optimizing performance, and using Site Survey.
- **Processing the Data**. How to view, print, and process the data files in other applications.
- **Trend Plots**. How to view the measurement trends during Hydra scanning, to save and print plots, and create Trend Plots from a data file.

STARTING AND STOPPING *Wireless Logger for Windows* 3-2.

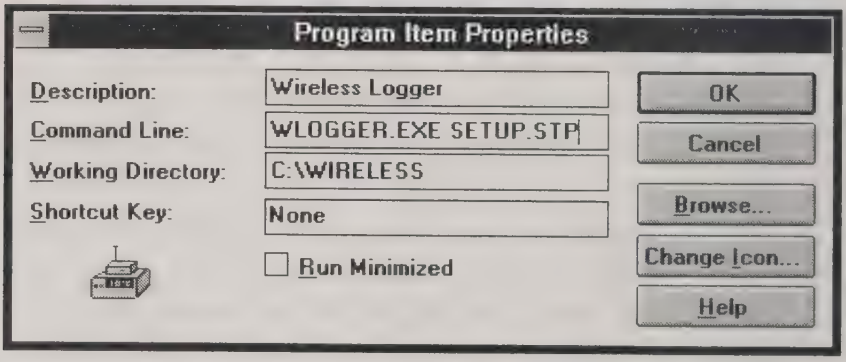
Similar to all Windows applications, *Wireless Logger for Windows* is started and exited using icons and menu selections. There are also several startup features that can be applied, allowing *Wireless Logger for Windows* to open automatically loading a setup file, and to open automatically loading a setup file and start all Hydras logging.

Starting *Wireless Logger for Windows* 3-3.

To start *Wireless Logger for Windows*, open Wireless Logger from the Fluke Wireless Logger group of Program Manager. Verify Wireless Logger opens to the Main Window.

To modify the starting procedure to open *Wireless Logger for Windows* automatically loading a setup file, conduct the following procedure.

1. Select, but do not open, the Wireless Logger icon in the Fluke Wireless Logger group of Program Manager.
2. Select the Properties... command from the File menu to open the Program Item Properties dialog box.
3. Modify the Command Line displayed in the Program Item Properties dialog box by adding the setup filename after the `WLOGGER.EXE` command. For example, if the setup filename is `SETUP.STP`, the command line would change to `WLOGGER.EXE SETUP.STP` (see below). Click OK when the command line is correct.



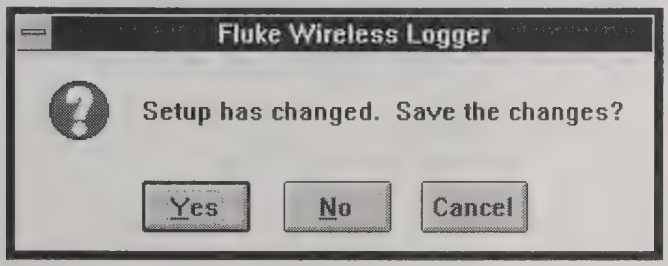
The Command Line displayed in the Program Item Properties dialog box may be further modified to include the `/G` switch. Using the example above, the Command Line would change to `WLOGGER.EXE SETUP.STP /G`. The `/G` switch must follow the setup filename on the command line.

The `/G` switch starts all Hydras when *Wireless Logger for Windows* is opened. Generally, this feature is used to automatically resume data collection after a loss of power to the Host Computer. For more information and configuration requirements when using the `/G` switch, refer to Appendix F, "Loss of Power."

Exiting *Wireless Logger for Windows* 3-4.

To exit *Wireless Logger for Windows*, select the Exit Application command from the *Wireless Logger for Windows* Setup menu, or double click the Control-Menu box (upper-left corner).

If you have changed the setup file, you will be prompted with a Save the changes? message, as shown below:



Click Yes to save the changes in the setup file and exit the application, click No to not save the changes in the setup file and exit the application, or click Cancel to return to the application.

HYDRA CONFIGURATION PROCEDURES 3-5.

Procedures in this section detail how to upload, download, save, and manipulate Hydra configuration data.

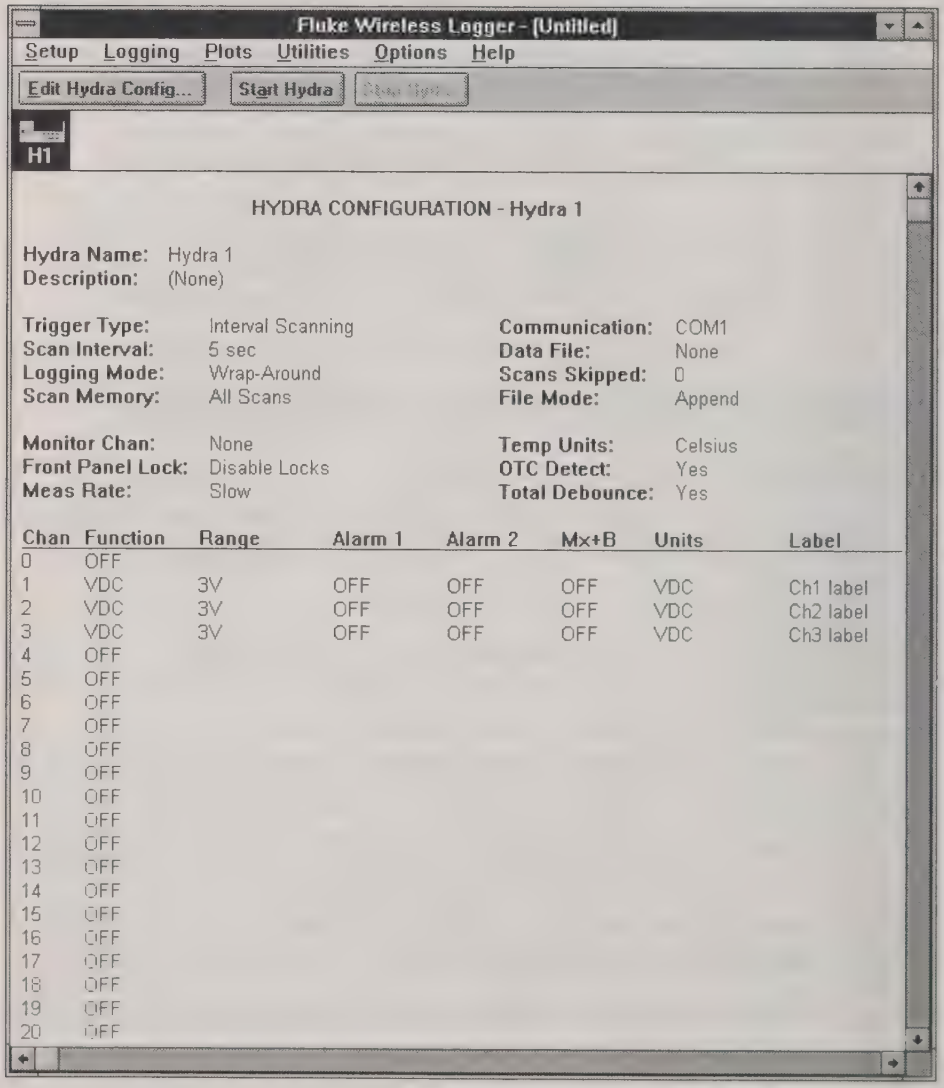
The following topics are covered in this section:

- **Editing Hydra Configuration Data**. Making changes to the Hydra configurations, e.g., scan interval, channel functions, alarms, Mx+B scaling, etc.
- **Copy Configuration Data Between Hydras**. Copy any Hydra configuration to another Hydra.
- **Downloading Configuration Data to a Hydra**. Sending the Hydra configuration from *Wireless Logger for Windows* to the Hydra.
- **Uploading Configuration Data from a Hydra**. Sending the Hydra configuration from the Hydra to *Wireless Logger for Windows*.
- **Printing Configuration Data**. Printing a hard copy record of the Hydra configuration data.

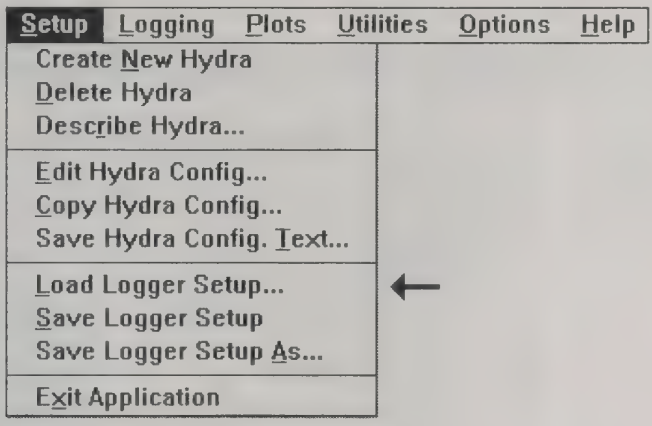
Editing Hydra Configuration Data 3-6.

Complete the following procedure to edit a Hydra configuration, which is saved in a setup file.

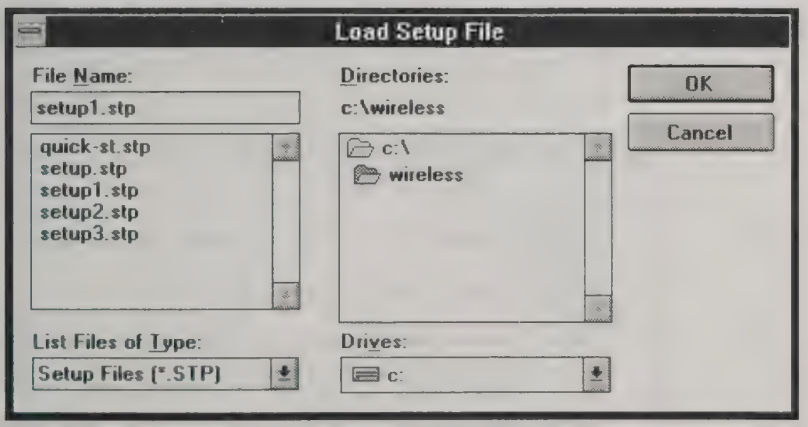
1. Open Wireless Logger from the Fluke Wireless Logger group of Program Manager. Verify the Main Window is displayed, as shown below.



2. Select the Load Logger Setup... command from the Setup menu (shown below).

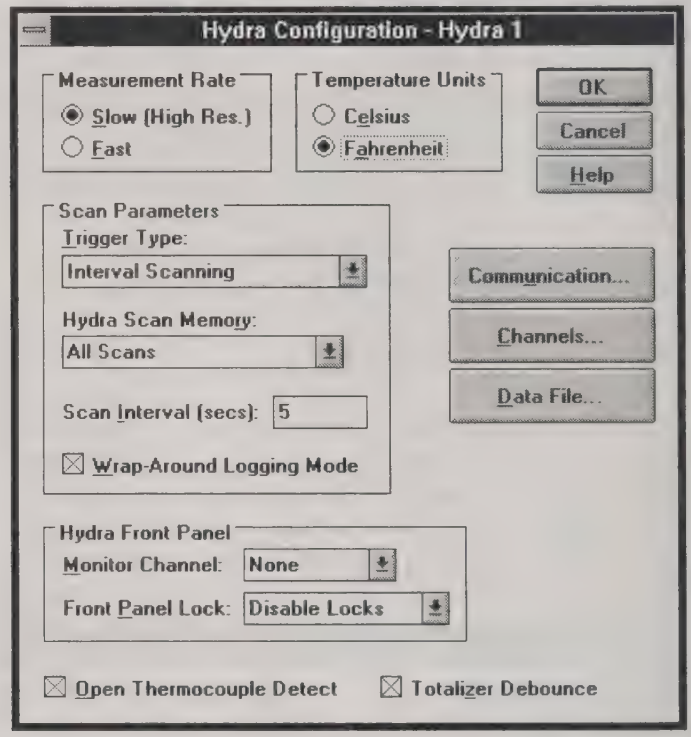


Choose a setup file, e.g., `setup1.stp`, from the Load Setup File dialog box (shown below) as the destination for the Hydra configuration data. Click OK. If working with only the `setup.stp` file, choose it, and then immediately use the Save Logger Setup As... command to make a copy, e.g., `setup1.stp`. (Reminder: This procedure assumes you created a setup file with the communication parameters, as discussed in Section 2.)



Following the convention introduced in Section 2, the file `setup.stp` contains all the communication parameters, while copies (`setup1.stp`, etc.) will also include the Hydra configurations entered in this procedure.

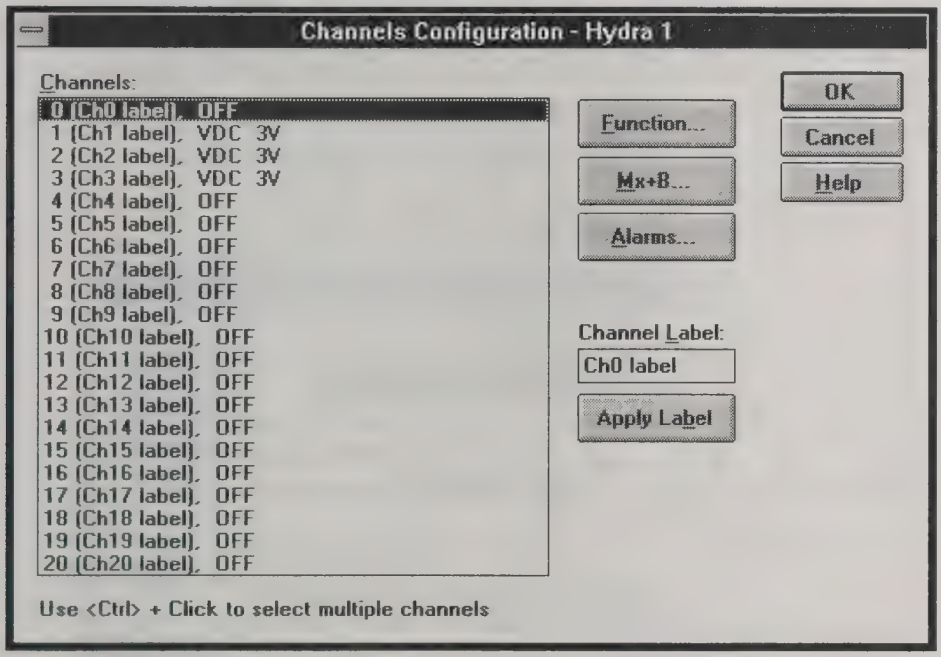
3. In the Main Window, click on the desired Hydra icon, e.g., Hydra (H1). Click the Edit Hydra Config... button to open the Hydra Configuration dialog box (see below).



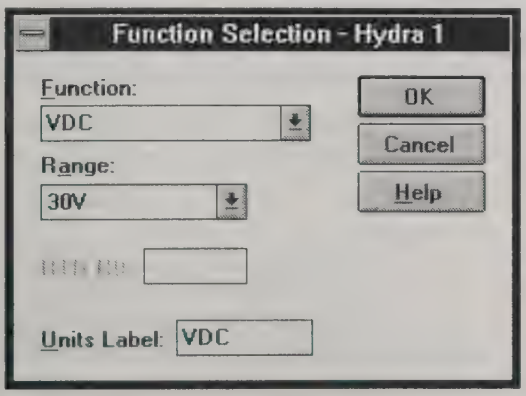
Make the following general selections in the Hydra Configuration dialog box to suit your application (click Help, as required):

- **Measurement Rate**. Slow (high resolution) or Fast
- **Temperature Units**. Celsius or Fahrenheit
- **Scan Parameters**. Trigger Type, Hydra Scan Memory, Scan Interval (secs), and Wrap-Around Logging Mode.
- **Hydra Front Panel**. Monitor Channel and Front Panel Lock.
- **Open Thermocouple Detect**. Enable or disable.
- **Totalizer Debounce**. Enable or disable.

4. Click the Channels... button to open the Channels Configuration dialog box (below). Configure this dialog box as described below. To configure multiple channels with the same configuration, select them using <Cntl>.



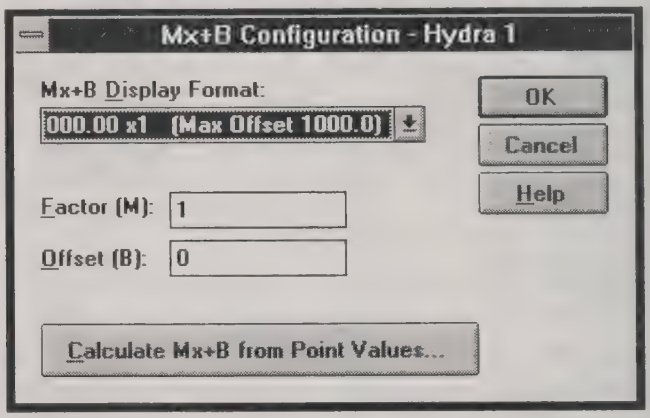
Click the Function... button to select the function of each Hydra channel. The Function Selection dialog box (below) is shown with an example.



The function selections are as follows. Click OK after making your selections.

- **Function**. Select from OFF, VDC, VAC, OHMS-2T, OHMS-4T, THERMOCOUPLE, RTD-2W, RTD-4W, and FREQ.
- **Range**. Select various ranges, depending on the Function.
- **Units Label**. Select a units label to reflect the measurement. This feature is often used with Mx+B scaling (see below).

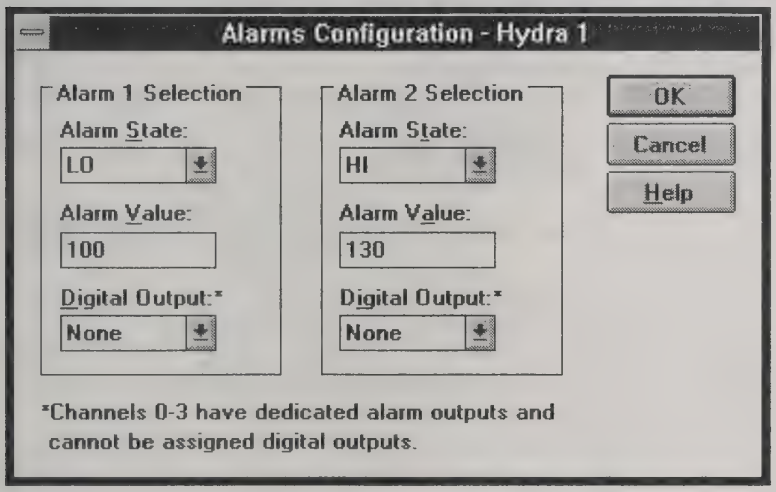
Click the Mx+B... button to configure the selected channels for Mx+B scaling. The Mx+B dialog box is shown below.



The Mx+B selections are as follows. Click OK after making your selections:

- **Mx+B Display Format**. Pull down the menu and select the display format, which also dictates a maximum offset range.
- **Factor (M)**. Select a multiplier for the measurement from -0.000,000,000,000,000,1 to +99,999,999.
- **Offset (B)**. Select an offset for the measurement from -999,999,999 to +999,999,999.
- **Calculate Mx+B from Point Values.** For automatic calculation and entering of the Mx+B values, plus the display format, click the Calculate Mx+B from Point Values... button. Enter the Input Range and Display Range values. Click OK.

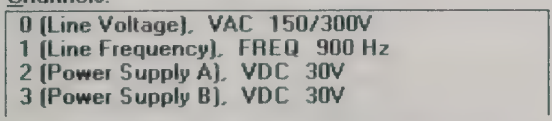
Click the Alarms... button to configure the selected channel(s) for alarm settings. The Alarms Configuration dialog box is shown below, with an example of HI and LO alarm settings.



The Alarm selections (two alarms) are as follows. Click OK after making your selections.

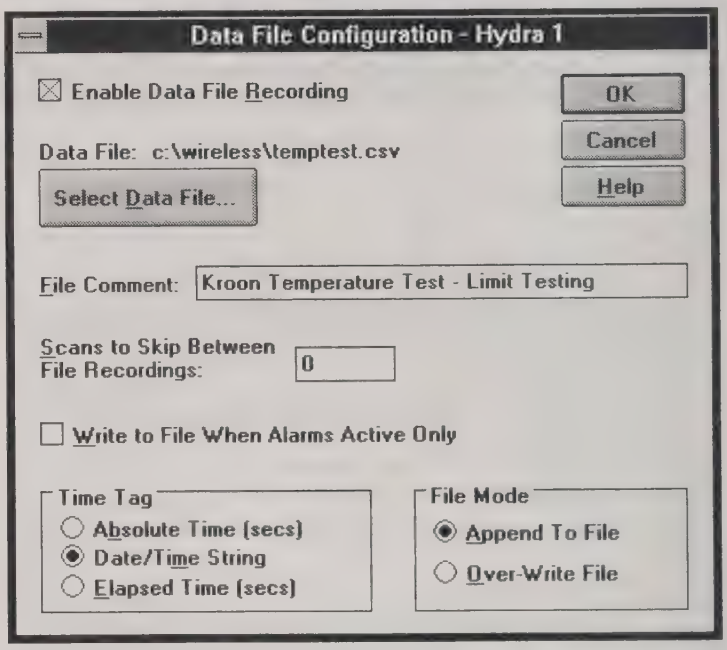
- **Alarm State**. Choose from HI (High), LO (Low) or OFF.
- **Alarm Value**. Choose an alarm value consistent with the expected readings and alarm conditions.
- **Digital Output**. Associate a Hydra DIGITAL I/O line with an alarm output, less Channels 0 to 3, which have dedicated alarm outputs. When an alarm is active, the I/O line is set low.

Select the Channel Label for each of the channels configured above by selecting the desired channel, entering the label and selecting the Apply Label button. Examples are shown below.



Click OK to return to the Hydra Configuration dialog box.

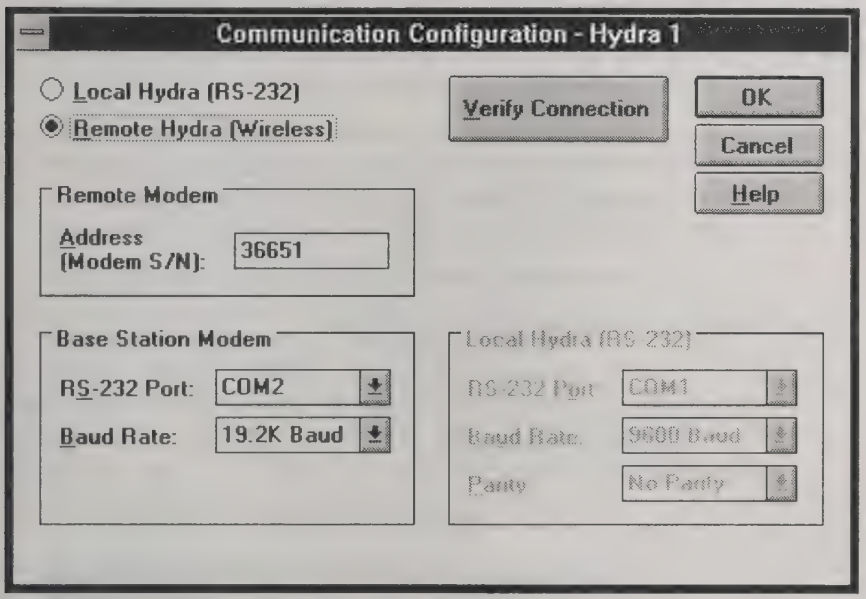
5. Click the Data File... button to open the Data File Configuration dialog box, shown below, with an example. Each Hydra has a separate data file.



The Data File selections are as follows. Click OK after making your selections.

- **Enable Data File Recording**. Enable or disable.
- **Data File**. Click the Select Data File... button and enter a file name, or if appending to a file, enter an existing file name.
- **File Comment**. Enter a file comment, which appears in the data file header. (See "Processing the Data" later in this section.)
- **Scans to Skip Between File Recordings**. Enter a number between 0 and 65535 of scans to skip between file recordings.
- **Write to File When Alarms Active Only**. Enable or disable.
- **Time Tag**. Choose Absolute Time (secs), Date/Time String, or Elapsed Time (secs).
- **File Mode**. Choose Append to File or Over-Write File.

6. Click the Communications... button to open the Communications Configuration dialog box, shown below, with an example.



The Communication Configuration selections are as follows. Click OK after making your selections.

- **Local Hydra (RS-232)/Remote Hydra (Wireless)**. Click local or remote operation for the Hydra.
- **Remote Modem**. Enter the serial number of the Hydra Remote modem in the Address (Modem S/N) box.
- **Base Station Modem**. Select the RS-232 port and Baud Rate of the Base Station COM port that connects to the Base Station wireless modem.
- **Local Hydra (RS-232)**. Select the RS-232 port, Baud Rate, and Parity for the RS-232 port that connects to the Local Hydra.
- **Verify Connection**. Click to check the communications link.

7. Click OK in the Hydra Configuration dialog box to return to the Main Window. The Main Window summarizes the configuration you just

entered for the selected Hydra. To name the Hydra something other than Hydra 1, Hydra 2, etc., select the Describe Hydra... command from the Setup menu and edit the Hydra Name and/or Description.

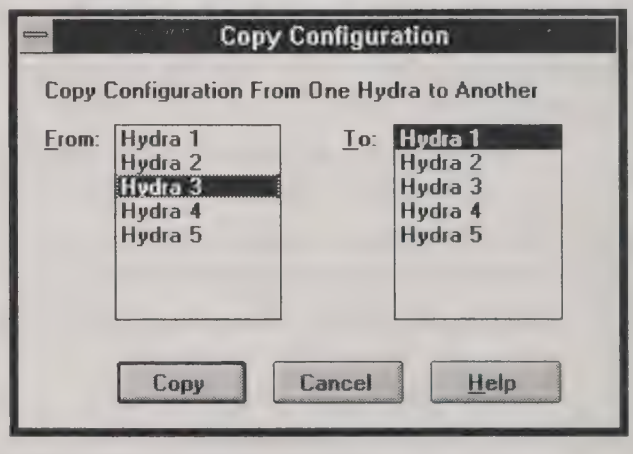
8. Select the Save Logger Setup command from the Setup menu to save the configuration data.

   The configuration data does not automatically appear at the Hydra. The configuration is sent to the Hydra either at the start of logging (discussed in "Logging Operations") or when downloading (discussed in "Downloading Configuration Data to a Hydra").

   Repeat steps 3 through 7 to configure each Hydra.

Copy Configuration Data Between Hydras 3-7.

To copy a Hydra configuration to another Hydra, select the Copy Configuration.. command from the Setup menu. In the Copy Configuration dialog box, make From: and To: Hydra selections. Click Copy. All configuration parameters are copied except the data file configuration, communication configuration, and Hydra Name. The example below shows the Hydra 3 configuration will be copied to Hydra 1.

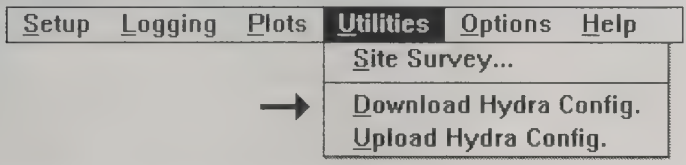


Downloading Configuration Data to a Hydra 3-8.

The downloading feature sends configuration data from the Host Computer to a Hydra, configuring all the Hydra channels, alarms, Mx+B scaling, scan interval, etc. During logging operations, the default setting is for downloading to occur at the start of logging.

Complete the following procedure to download configuration data to a Hydra.

1. Click the Hydra icon in the Main Window for configuration data downloading. When downloading, it is this Hydra that receives the configuration data. If the displayed Hydra configuration is the configuration you want to download, proceed to Step 3; otherwise, continue to Step 2.
2. Create the configuration you want to download using the procedures in "Entering Hydra Configuration Data" above, or copy a configuration from another Hydra using "Copy Configuration Data Between Hydras" above.
3. Select the Download Hydra Config. command from the Utilities menu.

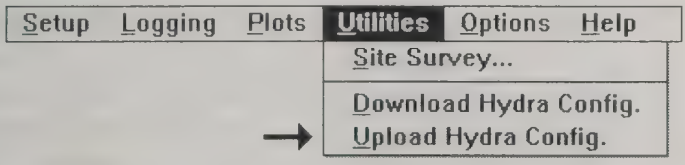


Uploading Configuration Data from a Hydra 3-9.

The uploading feature retrieves configuration data from a Hydra, including all the channels, alarms, Mx+B scaling, scan interval, etc. (Note: Model 2635A using dc-volt scales 90 mV and 900 mV uploads these scales as Auto.)

Complete the following procedure to upload configuration data from a Hydra.

1. Click the Hydra icon in the Main Window for configuration data uploading. When uploading, this Hydra provides the configuration data.
2. Select Upload Hydra Config. from the Utilities menu (shown below).



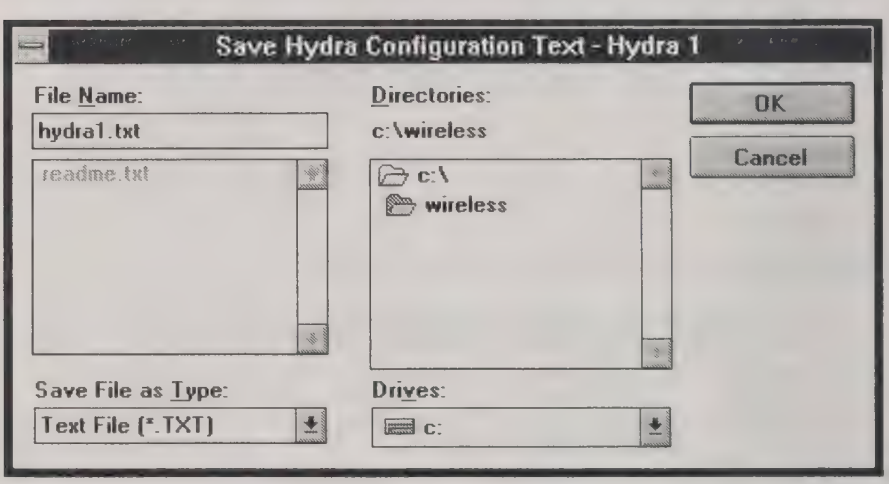
3. Update channel labels and unit labels for the new uploaded configuration.
4. To save this configuration, select the Save Logger Setup command from the Setup menu.
5. To copy this configuration to another Hydra, refer to the previous heading "Copy Configuration Data Between Hydras."

Printing Configuration Data 3-10.

You can save Hydra configuration data as a text file, e.g., `hydra1.txt`. Like any text file, it can be opened in a word processing application or any text editor and then printed.

Complete the following procedure to print a configuration data record.

1. Click the Hydra icon in the Main Window for configuration data printing.
2. Select the Save Hydra Config. Text... command from the Setup menu, opening the Save Hydra Configuration Text dialog box (see below).



3. Enter a text file name in the File Name box, e.g., `hydra1.txt`. Change the Directories, Drives, and Save File As Type, as desired. Click OK.
4. Open the text file in any text editor or word processing application.

   To use the Windows Notepad Accessory, open Notepad from the Accessories group of Program Manager. Select the Open... command from the File menu. In the File Name box, enter the path and name of the text file saved in step 3 above, for example, `c:\wireless\hydra1.txt`. Click OK.

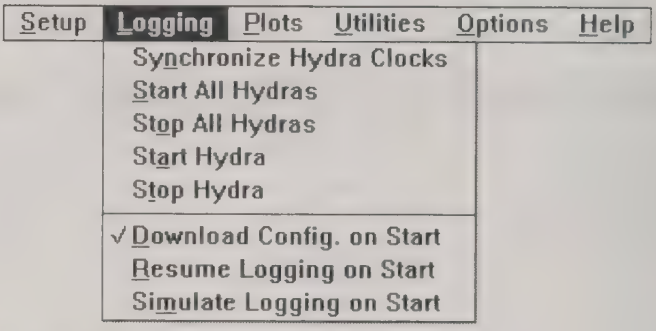
To print the file, select the Print command from the File menu. See the following printout example for the Hydra default settings.

```
                                HYDRA1.TXT



HYDRA CONFIGURATION - Hydra 1

Hydra Name:                 Hydra 1
Description:                (None)
Trigger Type:               Interval Scanning
Scan Interval:              5 sec
Logging Mode:               Wrap-Around
Scan Memory:                All Scans
Communication:              COM1
Data File:                  None
Scans Skipped:              0
File Mode:                  Append
Monitor Chan:               None
Front Panel Lock:           Disable Locks
Meas Rate:                  Slow
Temp Units:                 Celsius
OTC Detect:                 Yes
Total Debounce:             Yes

Chan  Function   Range   Alarm 1  Alarm 2  Mx+B   Units   Label
0     OFF
1     VDC        3V      OFF      OFF      OFF    VDC     Ch1 label
2     VDC        3V      OFF      OFF      OFF    VDC     Ch2 label
3     VDC        3V      OFF      OFF      OFF    VDC     Ch3 label
4     OFF
5     OFF
6     OFF
7     OFF
8     OFF
9     OFF
10    OFF
11    OFF
12    OFF
13    OFF
14    OFF
15    OFF
16    OFF
17    OFF
18    OFF
19    OFF
20    OFF
```

LOGGING OPERATIONS 3-11.

Logging operations consist of synchronizing Hydra clocks, starting and stopping the Hydras, either as a group or individually, and monitoring the collection, display, and values of the measurement data. The information in this section assumes Hydras are configured and ready for use. (Refer to the information covered earlier under "Hydra Configuration Procedures.")

Logging commands are in the Logging menu of the Main Window (see below).



Starting and Stopping the Hydras 3-12.

Starting a Hydra begins the data collection, while stopping the Hydra ends data collection. Scan records are transferred from the Hydras to the Host Computer over the wireless modem link (or RS-232 cable for a Local Hydra).

Complete the following procedure to start and stop the Hydras.

1. Select the Synchronize Hydra Clocks command from the Logging menu. This synchronizes all the Hydra clocks with each other and to within one minute of the Host Computer system time. This is important for time tag data correlation in plotting and data processing.

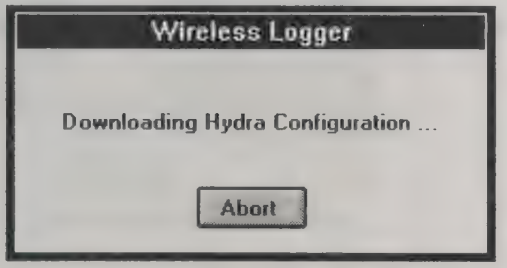
2. Select one of the following starting modes from the Logging menu:

   - **Download Config. on Start** [default]. Hydra configurations are sent from the Host to the Hydras when the Hydras are started.

   - **Resume Logging on Start**. Hydra configurations are retrieved from the Hydras when the Hydras are started, resuming operations. (Note: Model 2635A using dc-volt scales 90 mV and 900 mV uploads these scales as Auto.)

- **Simulate Logging on Start**. There is no Hydra activity. Instead, the software generates pseudo data for training and testing.

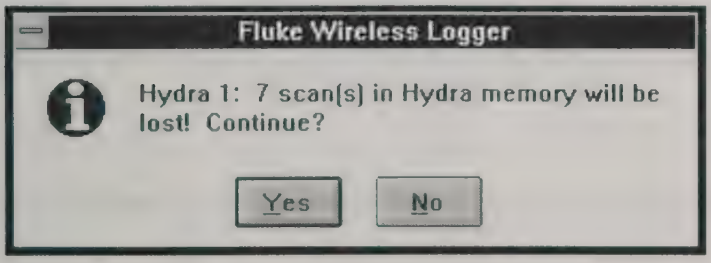
3. Click the Start Hydra button from the Main Window button bar, or, if starting all Hydras at once, the Start All Hydras command from the Logging menu. Verify the ...configuration... message below (assuming the default setting from step 2). If there are communication problems, an error message is reported. (See Appendix C "Error Messages.")



4. Verify the start of scanning with the Starting Hydra Logging message and a change in the Hydra icon with the appending of LOG (below).

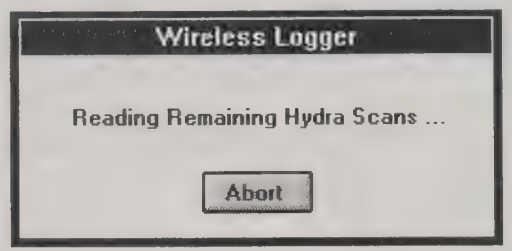
The Hydras are now collecting data. To stop scanning, proceed to step 5.

If a Hydra being started holds old measurement data in its scan memory, a warning message is displayed (below) before logging is started. If you select Yes to continue, the measurement data will be cleared. To retrieve this data, select No and return to step 2. Select the Resume Logging on Start command and repeat steps 3 and 4.



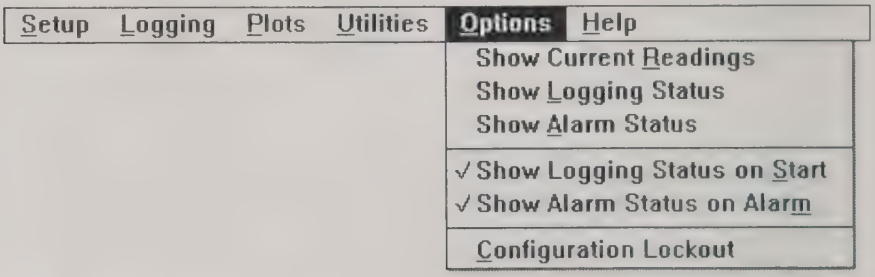
5. Click the Stop Hydra button in the Main Window button bar, or, if stopping all Hydras at once, the Stop All Hydras command from the Logging menu. Verify the message Stopping Hydra Logging...

   If the Hydra has measurement data remaining in scan memory, the Reading Remaining Hydra Scans... message appears (below). If you click the Abort button to terminate, the next time the Hydra is started using the Download Config. On Start mode, the warning message in step 4 appears.

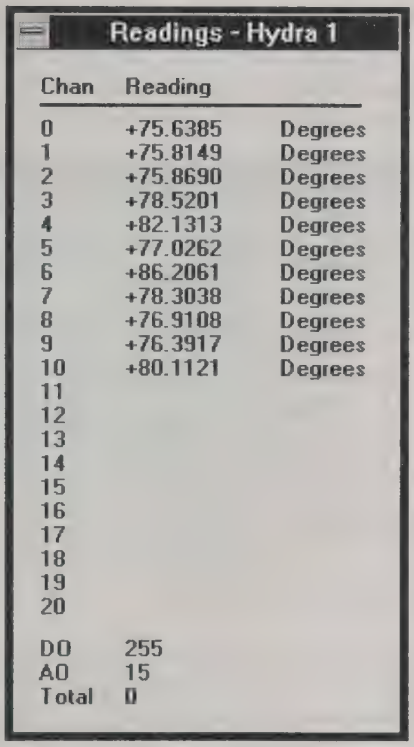


Monitoring Performance 3-13.

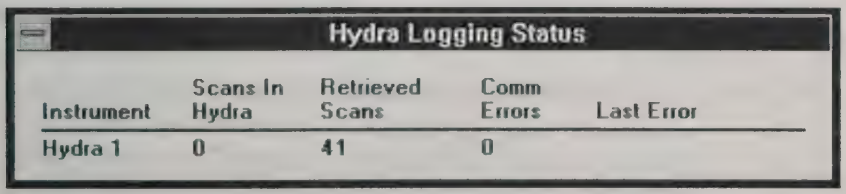
The Options menu from the Main Window (below), provides performance monitoring options during logging. The options (discussed below) place a dialog window in the application.



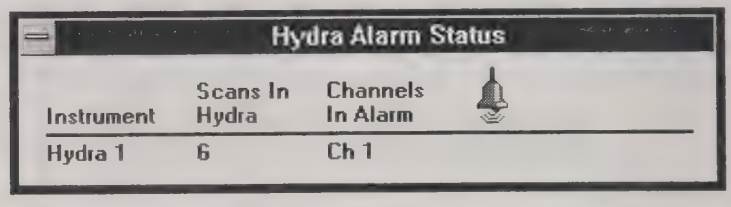
- **Show Current Readings**. Displays the channel measurements and the Digital I/O status (decimal 0 to 255 for lines 7 to 0), the Alarm status (decimal 0 to 15 for lines 3 to 0), and the Totalizer count for the selected Hydra. An example is shown below.



- **Show Logging Status**. Summarizes the communications link. Excessive Comm Errors indicate marginal communications between the Base Station and Remote. If the Scans In Hydra increase over time, scans are being collected in the Hydra faster than they can be retrieved. In this situation, stop logging and set the scan interval to a larger value. Enable Show Logging Status on Start from the Options menu [default] for automatic display when starting Hydra logging.



- **Show Alarm Status**. Summarizes the alarm status. The Alarm Bell appears when a channel is in alarm and all channels in alarm are listed. Enable Show Alarm Status on Alarm from the Options menu [default] for automatic display when a channel transitions into alarm.



- **Configuration Lockout**. This disables configuration-related commands in the Main Window Setup menu, including Create New Hydra, Delete Hydra, Describe Hydra..., Edit Hydra Configuration (including the button with the same function) and Copy Hydra Configuration...

Optimizing Performance 3-14.

The rate at which measurement data is transferred from the Remotes to the Base Station is optimized by the following:

- **Minimize the plot**. When using the Trend Plot feature, minimize the plot window to an icon and bring the plot up only when viewing the data. (See "Starting and Stopping Trend Plots" step 3.)
- **Disable your "Screen Saver" feature**. Automatic screen savers may slow system throughput. Disable them when possible. (See the Windows Control Panel.")
- **Disable Recording to Data Files**. If you do not want to save data to a data file, be sure recording is disabled. (See "Editing Hydra Configuration Data," step 5.)
- **Save Only Alarm Data**. Saving data only when a channel is in alarm [Model 2625A only] increases system throughput as non-alarm data is not transferred. (See "Editing Hydra Configuration Data," step 5.)
- **Avoid Radio Channel Sharing**. If networks share a single radio channel or adjacent channels, maximize the distance between the networks. Radio interference results in increased transmission errors, slowing down system throughput. (See "Configuring a Base Station Modem," step 11.)

- **Avoid Unnecessarily Short Scan Intervals**. Short scan intervals increase the amount of measurement data for transfer over the communications link. To speed system throughput, choose the longest possible interval. (See "Editing Hydra Configuration Data," step 3.)

Simulated Logging 3-15.

Simulated logging is enabled by selecting the Simulate Logging on Start command from the Logging menu. A Hydra that is logging in the simulated mode has SIM appearing in the icon (below).

Using Dynamic Data Exchange (DDE) 3-16.

Dynamic Data Exchange (DDE) links *Wireless Logger for Windows* to other applications running under Windows. To use DDE, open the DDE client application and perform any setup necessary to access external data via DDE. Refer to Appendix D for information on DDE.

Using Site Survey 3-17.

The Site Survey feature is used to test the communications link between the Base Station and Remote through use of the Hydra Totalizer function. Refer to "Using the Site Survey Feature to Verify Operations" in Section 2.

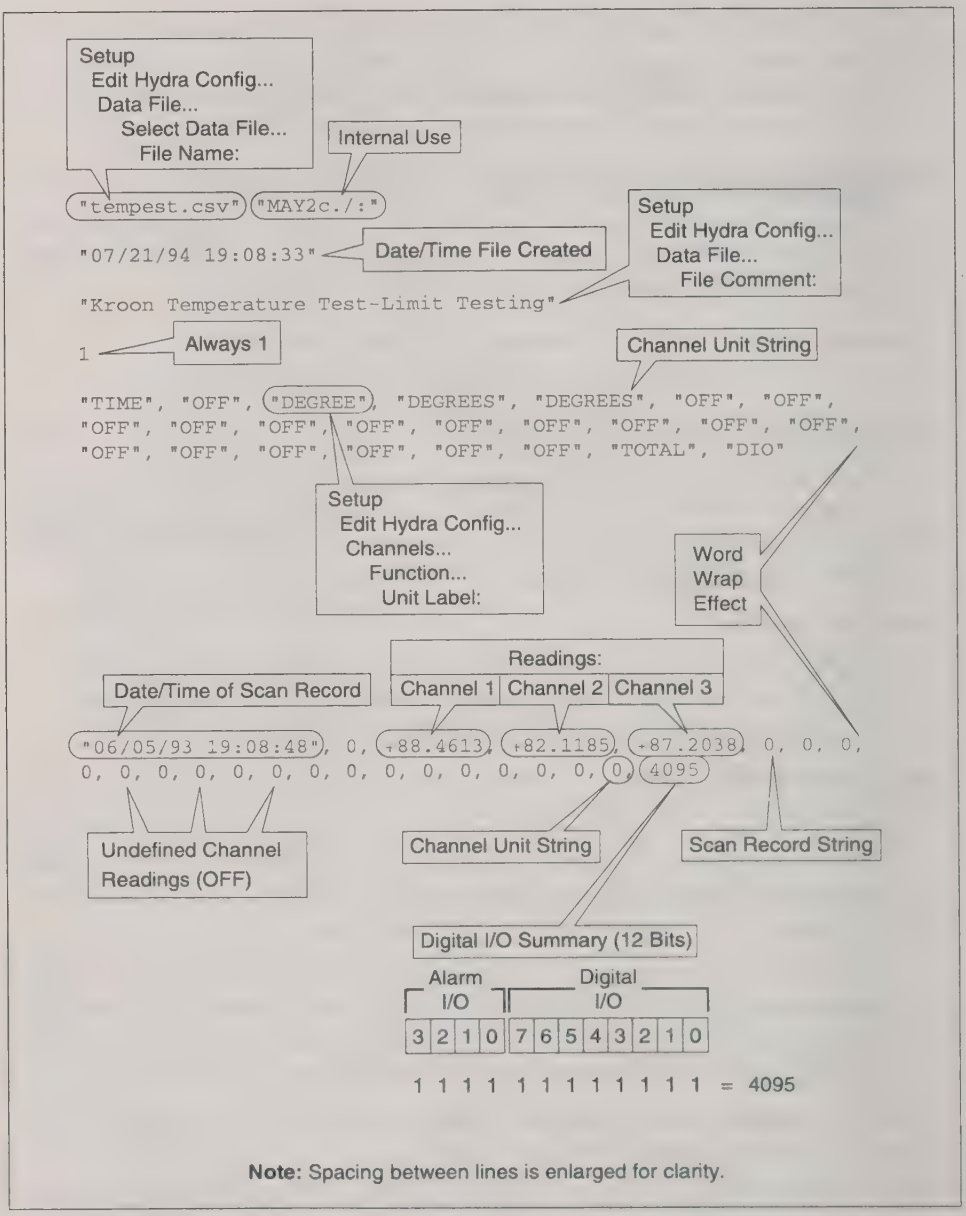
PROCESSING THE DATA 3-18.

Data files created during logging are saved in comma-separated-variable (csv) format in American Standard Code for Information Interchange (ASCII) text characters. Virtually all word processing, spreadsheet, and data management applications open, display, and print ASCII text files.

To combine data files into a single file, or to "filter" data files for specific channels, measurement range, date/time, etc., refer to Section 5 "Pruning and Grafting Utility." Refer to Figure 3-1 for an example of the data file formatting. To process your data files, refer to one of the following topics:

* **Viewing and Printing Data Files**. How to view and print your data files using the Windows Write Accessory.

* **Data Files and Other Applications**. How to view and print your data files using other Windows applications, in particular, spreadsheets.



Note: Spacing between lines is enlarged for clarity.

Figure 3-1. Data File Formatting

Viewing and Printing Data Files 3-19.

You can view and print data files in their original csv format with the Windows Write or Notepad Accessory, or any word-processing application that opens text files. The procedure below assumes the use of the Write Accessory. The data is printed in strings, without formatting. Add your own formatting, as desired.

1. Open Write from the Accessories group of Program Manager.
2. Select the Open... command from the File menu. In the File Name box, enter the path and name of the desired data file, for example, `c:\wireless\temptest.csv`. Click OK. Select No Conversion is response to the "Do you want to convert this file to Write format?" to maintain this as a text file.
3. Verify the text file appears in the format shown in Figure 3-1.
4. To print the file, select the Print... command from the File menu. After printing or viewing, select the Exit command from the File menu.

Data Files and Other Applications 3-20.

Viewing and printing *Wireless Logger for Windows* data files is enhanced by processing the data in spreadsheet programs, which presents the data in columns. Spreadsheets can also present the data in graphs and plots. Complete the following procedure to view and print a data file in spreadsheet format.

1. Open the spreadsheet application in Program Manager.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.
   - Select the Open... command from the File menu. In the File Name box, type the complete path to the *Wireless Logger for Windows* data file you wish to display, for example, `c:\wireless\temptest.csv`.
   - Select the Import From command from the File menu. In the File Name box, type the complete path to the *Wireless Logger for Windows* data file you wish to display, for example, `c:\wireless\temptest.csv`.
3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.

   Print the data, as desired. (Refer to your spreadsheet documentation.)

TREND PLOTS 3-21.

Trend Plots provide a graphical indication of the measurement trend during Hydra scanning. Eight separate Trend Plot windows may be running at one time and each plot displays up to eight traces from any mix of Hydras and Hydra channels. An example is shown in Figure 3-2. Plot images may be saved using Windows clipboard (*.clp) and Paintbrush (*.bmp) accessories, and pasted into any application that accepts images in bitmap format. Plots may be played back from a data file using other Windows applications such as a spreadsheet or plotting package.

For customization of plot traces, line types include eight symbols, eight colors, and six line styles.

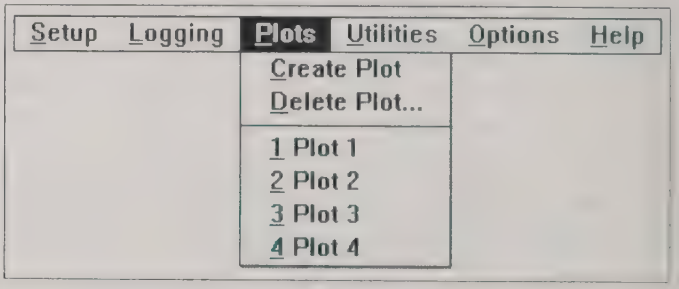
The following topics are covered in this section:

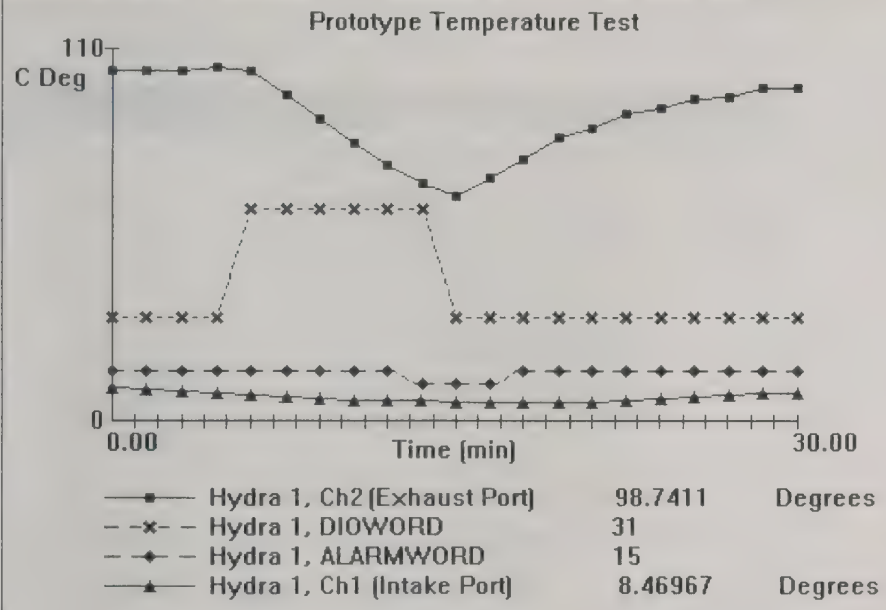
- **Creating and Configuring a Plot.**
- **Starting and Stopping Trend Plots.**
- **Saving and Printing Trend Plots.**
- **Getting the Right Trend Plot Look.**
- **Deleting Trend Plots.**
- **Creating Plots and Graphs from a Data File.**

Creating and Configuring a Plot 3-22.

Complete the procedure below to create and configure a Trend Plot. A Trend Plot can be created at any time, even during data collection.

1. Select the Plots menu from the Main Window. This opens a listing of the existing plots (eight plots maximum). The example below shows four plots, Plot 1 through Plot 4, already exist, and the plot created next will be Plot 5. Plot 1 through Plot 4 are the default plot titles. A plot title is assigned as shown in Figure 3-3.





About This Figure...

The numeric display of readings is always from the most recent scan. The plot window Options... menu provides an option to show or hide the plot legend and readings.

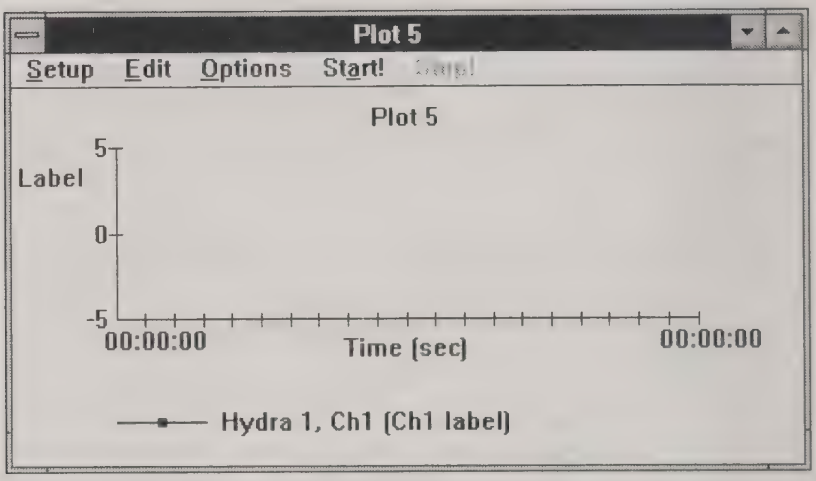
DIOWORD is the decimal equivalent of the status of the Hydra Digital I/O lines 7 to 0 (available at the Hydra rear panel DIGITAL I/O connector). If no lines are set, the I/O lines are 11111111 (decimal 255). In this example, I/O lines 6 and 7 are grounded and I/O line 5 is connected to the contacts of a test toggle switch, toggling the I/O between 00111111 (63) and 00011111 (31).

ALARMWORD is the decimal equivalent of the status of the Hydra dedicated Alarm lines (available at the Hydra rear panel ALARM OUTPUTS connector). When no alarms are set for channels 3 to 0 (the dedicated channels), the alarm lines are 1111 (decimal 15). In this example, Hydra 1, Channel 2, has a Low Alarm of 75° C. When Channel 2 reaches 75° C, the alarm lines change from 1111 (15) to 1011 (11). When the alarm clears, the lines return to 1111 (15).

A channel in alarm displays measurements in red in the numerical display beneath the plot. Plots from Hydras with different scan intervals create traces with points closer together or farther apart on the plot.

Figure 3-2. Typical Trend Plot

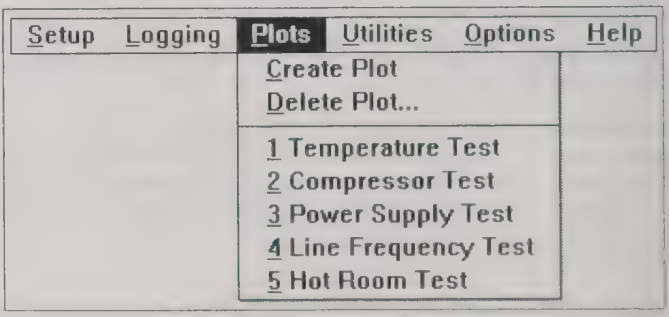
2. Click on Create Plot to create a new plot. This creates a plot with default settings, as shown below. In this example, Plot 5 was created.



3. Customize your plot as shown by example in Figure 3-3. The readings in the legend appear only when the plot has been started.

   All selections, except for the channel label and units label, are made from the Plot window menus.

   After plots are titled, they might appear in the plot list as shown below.



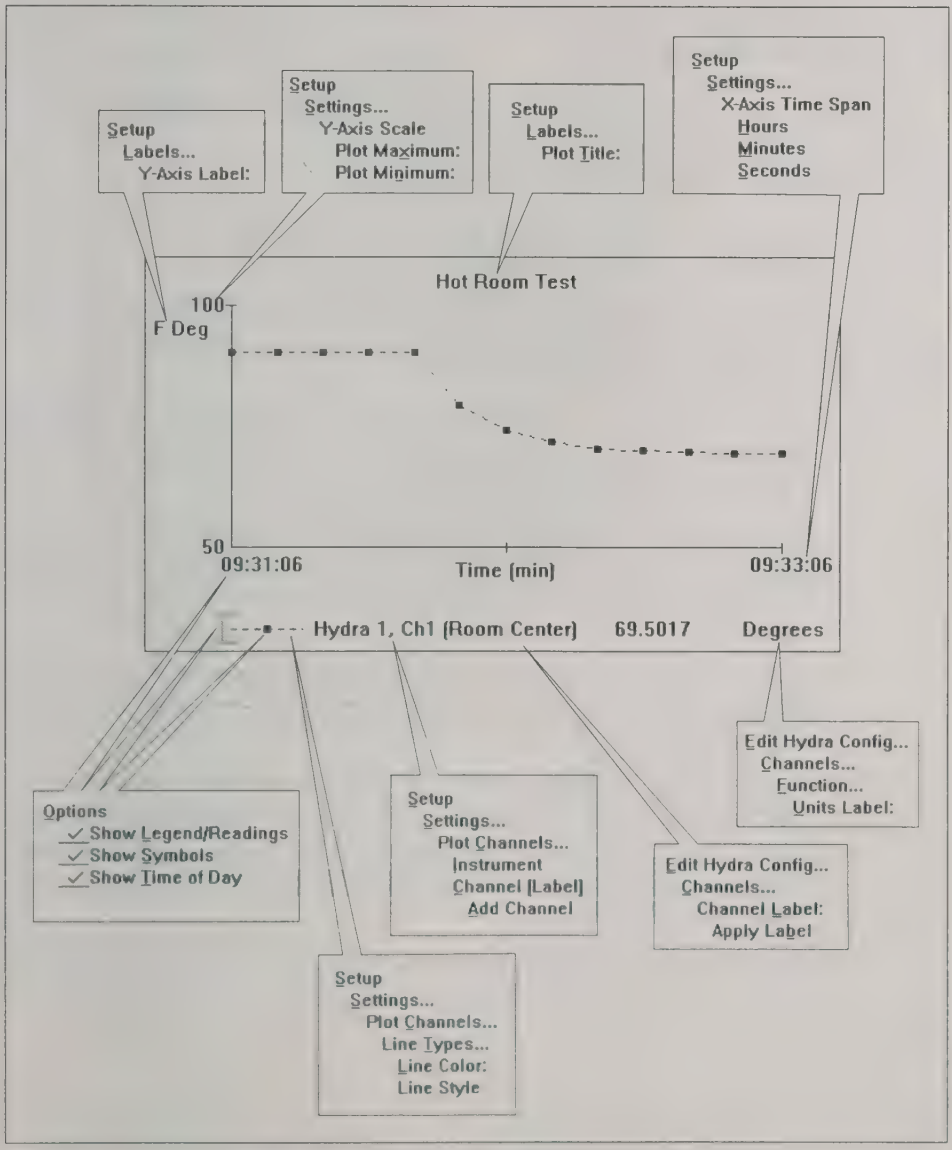


Figure 3-3. Configuring a Trend Plot

Starting and Stopping Trend Plots 3-23.

Complete the procedure below to start and stop a Trend Plot. Trend Plots operate independently from the Start Hydra and Stop Hydra commands made in the Main Window. When you start a Trend Plot, which always clears previous traces on the plot, it continues to run until you command it to stop. Trend Plots can be minimized to an icon by clicking the Minimize button (down arrow) in the top-right corner of the plot window. Plot images can be captured at any time and printed out (see "Printing Trend Plots" below).

1. Select the desired plot from the plot list in the Plots menu of the Main Window.

2. At the top of the plots window, click Start! to start the plot. If a full-screen display is desired, click on the Maximize button (up arrow) at the top-right corner of the plot window.

   You can turn the Show Symbols feature on and off at any time from the Options menu. Each symbol represents a data point, and data points are connected with the selected Line Type (see Figure 3-3).

   To save the plot image at any time, select Copy Image from the Edit menu. This copies the plot into the Windows Clipboard (see "Printing Trend Plots" below). When the Edit menu is open, the plot pauses (no data is lost).

   Data will not appear on the plot unless the Hydras associated with the plot channels have been started. The Hydras may be started before or after starting the plot.

3. To close the plot, double click on the Control-menu box at the at the top-left corner of the plot window, or select Close Plot from the plot Setup menu. Any plotting that is in progress will continue. To completely remove a plot, you must use the Delete Plot command from the Plots menu of the Main Window.

4. To retrieve a plot after it has been closed, select the plot title from the Plots menu of the Main Window.

5. To stop a plot, retrieve the plot (see step 4) and click the Stop! button.

   To save the plot image, click Edit and then Copy Image. This saves the plot in the Windows Clipboard. Be sure to process the graphic as soon as possible because any other use of the Clipboard overwrites the graphic.

   If Start! is clicked again, the plot clears and begins.

6. To clear the plot from the screen, select Close Plot from the plot Setup menu.

Saving and Printing Trend Plots 3-24.

The plot image in the Clipboard may be pasted immediately into another application or saved and recalled for processing at a later time.

Complete the procedure below to save, recall, and print a trend plot image using Windows.

SAVING A TREND PLOT IMAGE

1. While in a plot window, select Copy Image from the Edit menu. The plot image is saved in the Windows Clipboard feature.
2. Open Clipboard Viewer from the Main group of Program Manager.
3. Select Save As... from the File menu. In the File Name box, select a path and name, e.g., `C:\WIRELESS\PLOT22.CLP`. Click OK.

RECALLING A TREND PLOT IMAGE

1. Open Clipboard Viewer from the Main group of Program Manager.
2. Select Open... from the File menu. In the File Name: box, select a path and name, e.g., `C:\WIRELESS\PLOT22.CLP`. Click OK.
3. The recalled image in Clipboard may now be pasted into applications and accessories that accept graphics in bitmap format.

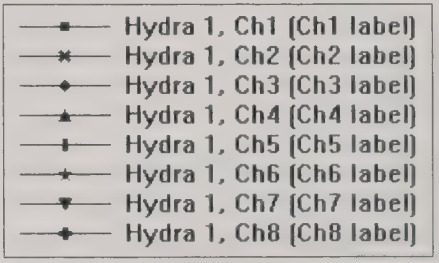
PRINTING A TREND PLOT IMAGE

1. Place the desired Trend Plot image in the Clipboard (see above).
2. Open Paintbrush from the Accessories group of Program Manager.
3. Select Paste from the Edit menu. If the Paintbrush screen is too small for the paste, select the Image Attributes... command from the Options menu to resize the screen, then repaste the image. (See your Windows documentation for instructions on using Paintbrush.)

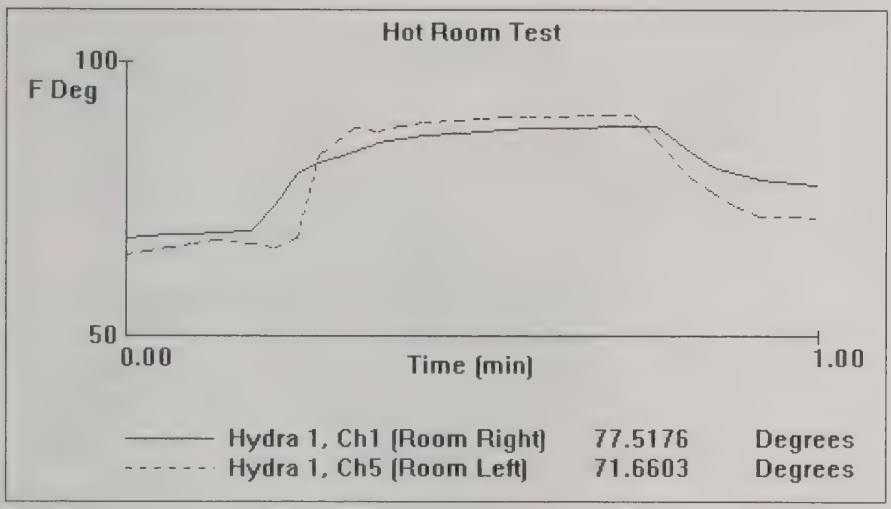
   Trend Plot images can be enhanced using the Paintbrush tools. For example, adding text, grid lines, and comments. An example is shown in Figure 3-4.
4. Select Print... from the File menu to print the image.
5. To save the image, select Save As... from the File menu. Select a path and name, e.g., `C:\WIRELESS\PLOT22.BMP`. Click OK.

Getting the Right Trend Plot Look 3-25.

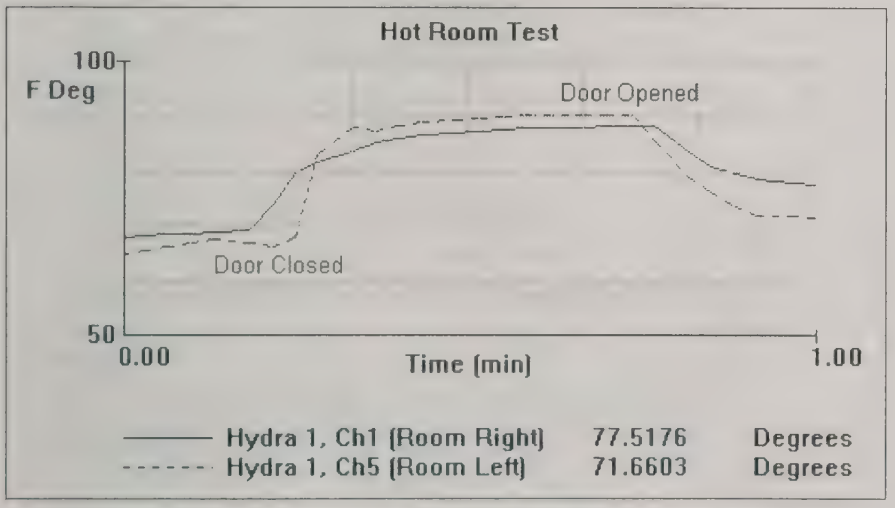
A Trend Plot data point is connected to the next data point with the selected Line Type, and marked with a Symbol (if selected) (see Figure 3-3). There are eight different symbols, one for each of the eight plot traces (below).


Hydra 1, Ch1 (Ch1 label)
Hydra 1, Ch2 (Ch2 label)
Hydra 1, Ch3 (Ch3 label)
Hydra 1, Ch4 (Ch4 label)
Hydra 1, Ch5 (Ch5 label)
Hydra 1, Ch6 (Ch6 label)
Hydra 1, Ch7 (Ch7 label)
Hydra 1, Ch8 (Ch8 label)

When a Trend Plot time span is selected in the Plot Settings dialog box, the minimum Hydra Scan Interval for a full-scale plot is calculated and displayed (see below). For example, a plot time span of 10 hours calculates a minimum recommended Hydra scan interval of 73 seconds. Typical plot characteristics are shown in Figures 3-5 and 3-6.



Original Trend Plot Image



Enhanced Trend Plot Image Using the Paintbrush Accessory

Figure 3-4. Printing Trend Plots

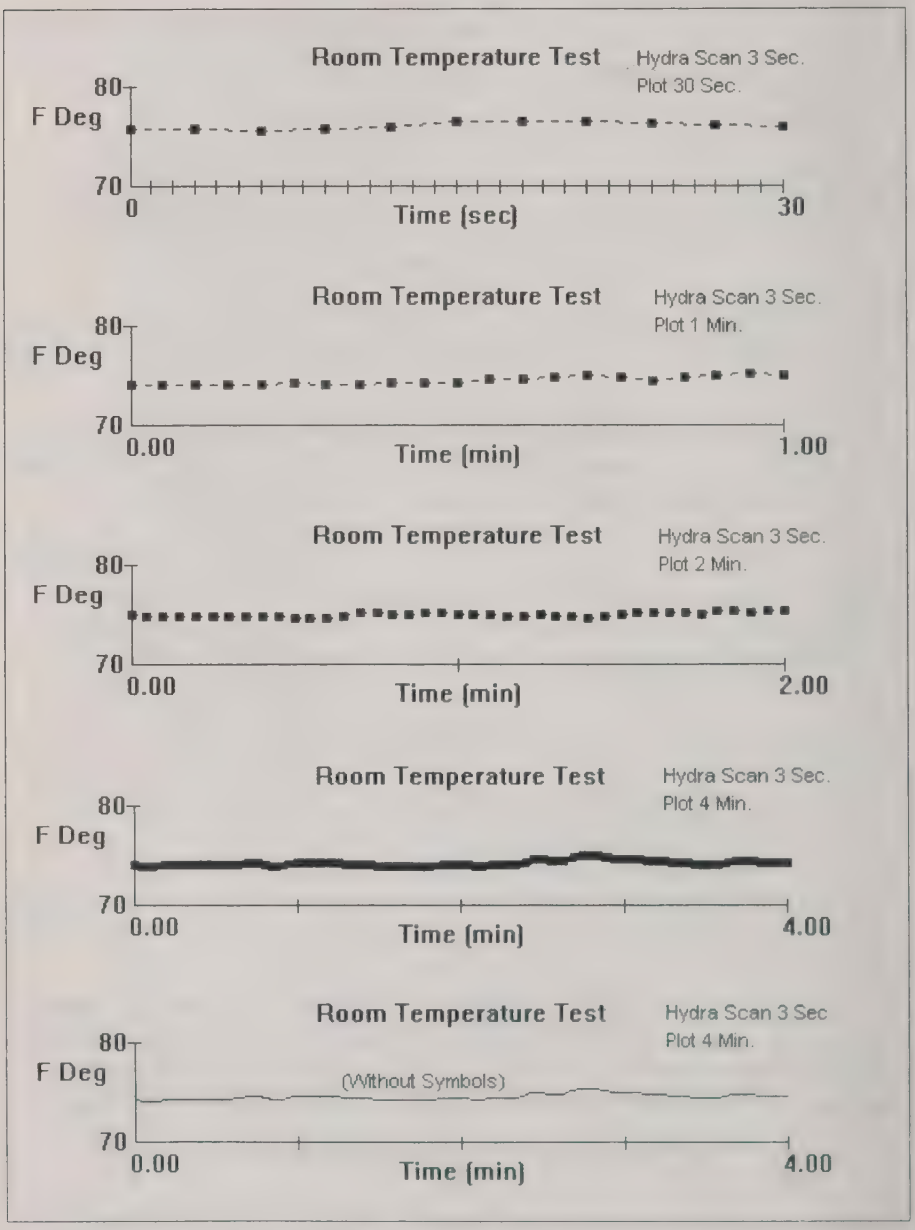


Figure 3-5. Trend Plot Characteristics

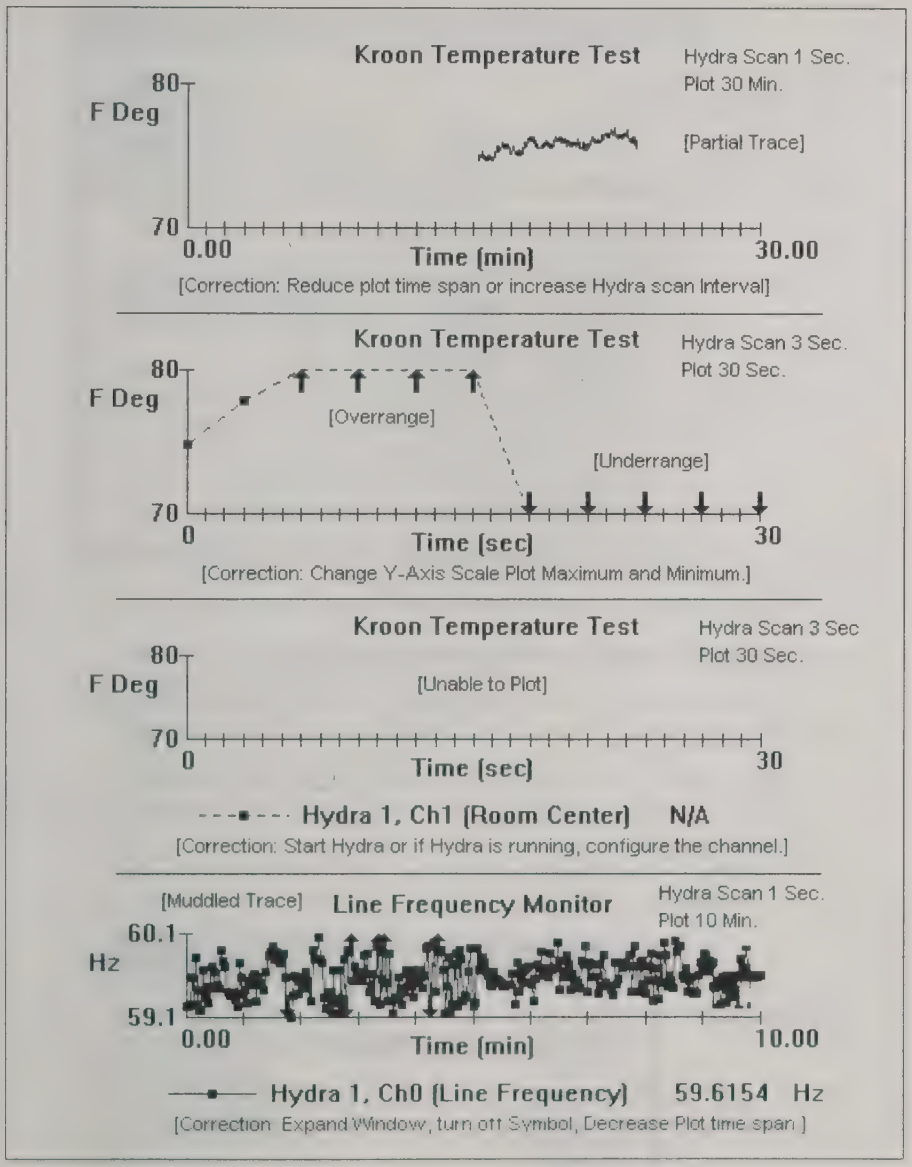
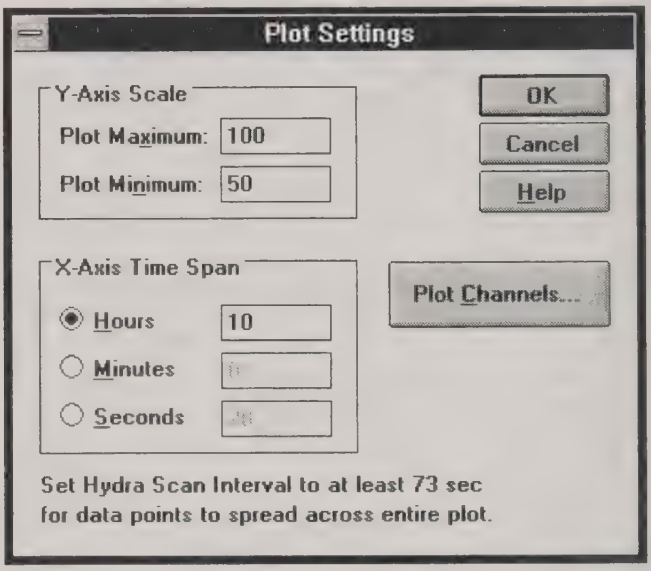


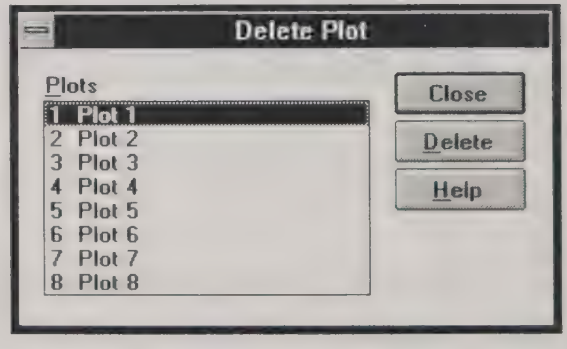
Figure 3-6. Troubleshooting Trend Plots



Deleting Trend Plots 3-26.

Complete the procedure below to delete a Trend Plot.

1. Select the Delete Plot command from the Plots menu of the Main Window.
2. Select the title of the plot to delete, then click Delete (see below). Respond to the Delete Anyway? message with OK. Repeat for each plot to be deleted.
3. Click on Close to return to the Main Window.



Creating Plots and Graphs from a Data File 3-27.

You can create a plot or graph of a data file by using most spreadsheet applications. The procedure that follows is general and should be adapted to whatever spreadsheet program you are using.

Complete the following procedure to create a plot or graph from a data file.

1. Open the spreadsheet application from Program Manager.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.
   - Select the Open... command from the File menu. In the File Name box, type the complete path to the *Wireless Logger for Windows* data file you wish to display, for example, `c:\wireless\temptest.csv`.
   - Select the Import From command from the File menu. In the File Name box, type the complete path to the *Wireless Logger for Windows* data file you wish to display, for example, `c:\wireless\temptest.csv`.
3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.
4. Highlight the cells you wish to plot or graph. Include the far-left column containing Hydra time stamps to plot data versus time.
5. From the spreadsheet toolbar or menu, open the graph/plot utility.
6. Open a plot/graph window in the spreadsheet to display the plot/graph.
7. Select the desired plot or graph format, and enter titles, axis labels and other formatting features, as desired.
8. Print the plot/graph from the spreadsheet or copy and paste it into word processing, Paintbrush accessory, Clipboard accessory, or any application that accepts images in bitmap format.

Section 4
Wireless Logger for Windows Reference

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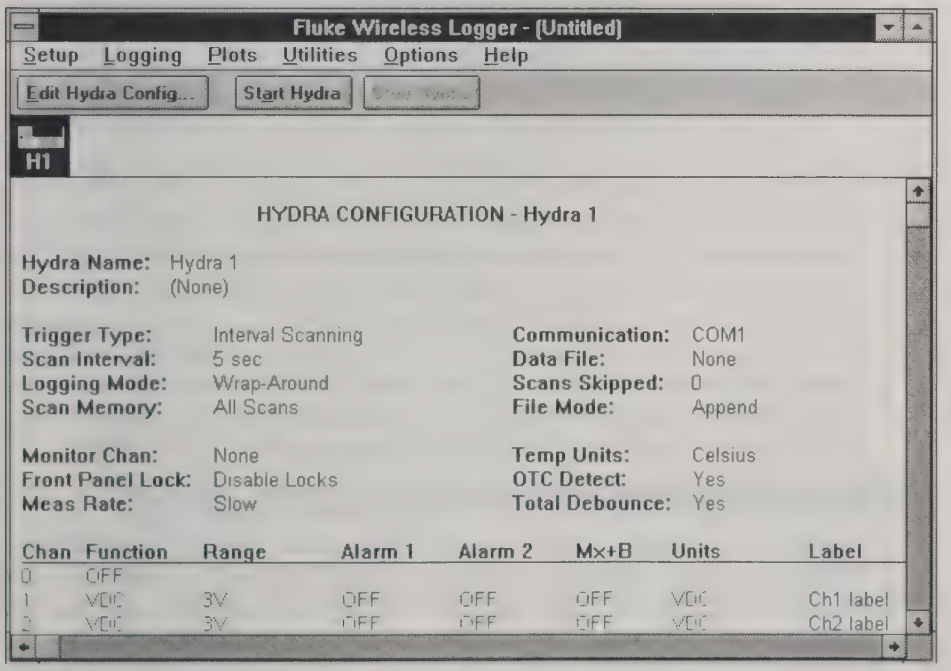
INTRODUCTION 4-1.

This section is a reference guide to the dialog boxes and menus of *Wireless Logger for Windows* software.. Each dialog box contains various types of controls for performing functions, selecting parameters, and entering file names. Press the **F1**-Help key, or select the Help button in the current dialog box for specific information about an operation.

MAIN WINDOW 4-2.

The Main Window (below) is displayed whenever the *Wireless Logger for Windows* application is selected from the Windows Program Manager. The Main Window provides a menu bar at the top, buttons for quick access to three often-used Main Window items, a Hydra selection menu bar just below the buttons, and a Hydra configuration display area.


Fluke Wireless Logger - [Untitled]
Setup Logging Plots Utilities Options Help
Edit Hydra Config...
Start Hydra
H1
HYDRA CONFIGURATION - Hydra 1
Hydra Name: Hydra 1
Description: (None)
Trigger Type: Interval Scanning
Scan Interval: 5 sec
Logging Mode: Wrap-Around
Scan Memory: All Scans
Communication: COM1
Data File: None
Scans Skipped: 0
File Mode: Append
Monitor Chan: None
Front Panel Lock: Disable Locks
Meas Rate: Slow
Temp Units: Celsius
OTC Detect: Yes
Total Debounce: Yes
Chan Function Range Alarm 1 Alarm 2 Mx+B Units Label
0 OFF
1 VDC 3V OFF OFF OFF VDC Ch1 label
2 VDC 3V OFF OFF OFF VDC Ch2 label

The menu bar across the top of the Main Window allows you to select *Wireless Logger for Windows* menu commands for setting up the Hydra configuration, starting scanning and data collection, setting up trend plots, uploading and

downloading Hydra configuration, showing status windows, locking out configuration changes, and displaying help.

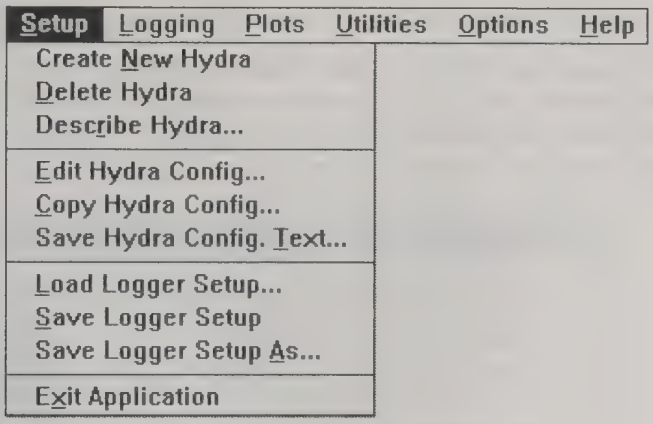
To speed operations, the button bar (located below the menu bar) contains three commonly selected functions. These functions allow you to quickly edit the Hydra configuration, and start and stop the selected Hydra.

The Hydra selection icon bar contains an icon for each Hydra created using the Create New Hydra command from the Setup menu. The selected Hydra is highlighted. The information contained in the Hydra configuration display area applies to the selected Hydra in the icon bar. Any parameters that are set using the menu bar and the button bar apply to the selected Hydra.

The Hydra configuration display summarizes the Hydra configuration associated with the Hydra that is selected in the Hydra-selection icon bar. To change any of the configuration parameters shown, use the menus and dialog boxes provided in the main menu bar and the button bar. Select the Describe Hydra... command from the Setup menu to change the name and description of the selected Hydra. Use the Hydra Configuration dialog box (Setup Edit Hydra Config... menu or the Edit Hydra Config... button) to change the settings for Trigger Type, Scan Interval, Logging Mode, Scan Memory, Monitor Chan, Front Panel Lock, Meas Rate, Temp Units, OTC Detect, and Total Debounce. Use the Communication Configuration dialog box (Setup Edit Hydra Config... Communication...) to change the Communication parameters. Use the Data File Configuration dialog box (Setup Edit Hydra Config... Data File...) to change the settings for Data File, Scans Skipped, and File Mode. Use the Channels Configuration dialog box (Setup Edit Hydra Config... Channels) to set the channel definitions (the channels are shown at the bottom of the Hydra configuration display area). The contents of the menus and dialog boxes of the menu system are described in the following paragraphs.

SET UP HYDRA CONFIGURATIONS 4-3.

The Setup menu (below) contains commands to create new Hydras in the Main Window, delete Hydras from the Main Window, describe the Hydra, edit the configurations of each of the attached Hydras, and copy and save various configurations and setups. All configuration related dialog boxes include the associated Hydra number in the caption of the dialog, for example "Channel Configuration (Hydra 1)." All menu command followed by "..." open dialog boxes.



Create New Hydra 4-4.

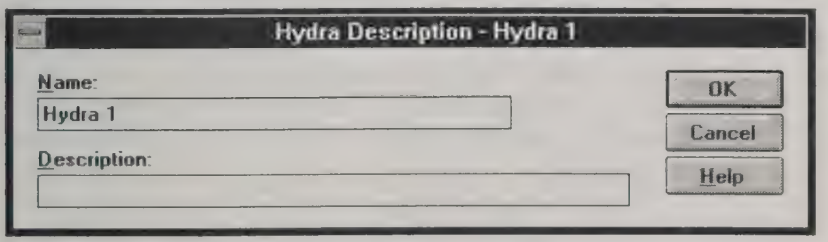
This menu selection adds a new Hydra icon to the Hydra selection menu bar. A default configuration is associated with the new Hydra icon, and is displayed in the Hydra configuration display area of the Main Window.

Delete Hydra 4-5.

This menu selection deletes the selected Hydra from the Hydra selection menu bar. The associated Hydra configuration is also deleted. A warning message appears that gives you a chance to cancel the deletion.

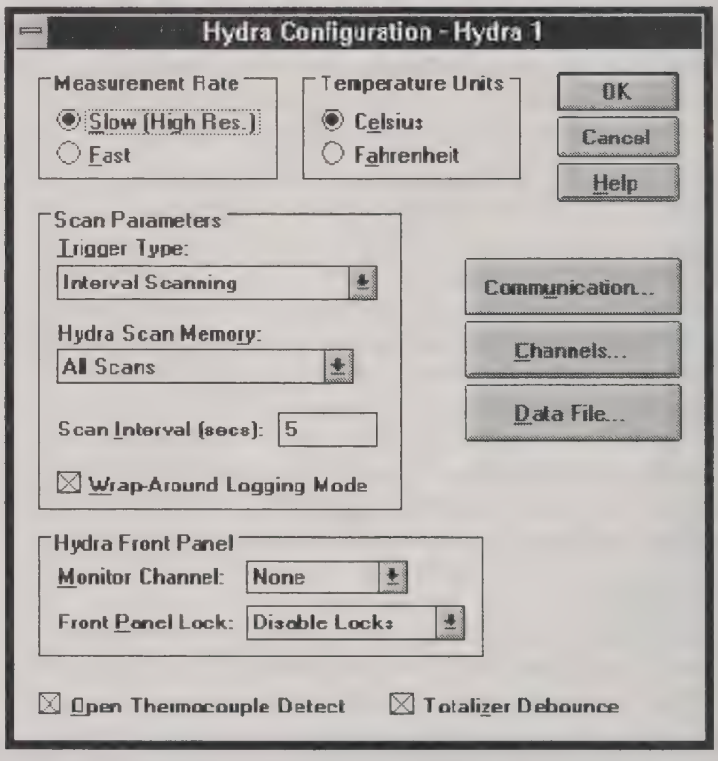
Describe Hydra... 4-6.

This menu selection opens a dialog box (below) for entry of a Hydra name and description. Click OK to place the Hydra name and description in the Hydra configuration display area of the Main Window.



Edit Hydra Configuration... 4-7.

This menu selection opens a dialog box (below) that allows you to enter the configuration parameters for the selected Hydra, establish the communications parameters between the Hydras and the base station, select the channel configurations for the Hydra, and enable data recording.

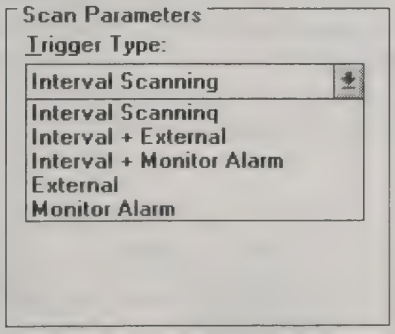


The changes made to the parameters are shown in the Hydra configuration display area of the Main Window. The Hydra configuration is downloaded to the selected Hydra when the Hydra is started (using the Download Config. on Start starting mode).

The following items are included in the Hydra Configuration dialog box:

- **Measurement Rate**. The speed at which the Hydra measures the input of each channel. The slow measurement rate provides the highest accuracy and resolution. The fast rate provides one less digit of resolution.
- **Temperature Units**. The type of temperature reading taken on the Hydra. The displayed temperature unit can either be degrees Celsius (°C) or Fahrenheit (°F).
- **Scan Parameters**. Sets the method the selected Hydra uses to scan its channels.
- **Hydra Front Panel**. Sets the attributes of the front panel of the selected Hydra.
- **Open Thermocouple Detection**. If checked, the open thermocouple detection circuitry on the Hydra is enabled. Disable open thermocouple detection if you have other instrumentation measuring the same thermocouple terminal.
- **Totalizer Debounce**. If checked, input debouncing is enabled for the "Σ" input on the rear panel Digital I/O connector, which adds a delay of 1.75 ms to each transition, allowing increased accuracy from totalizer inputs from contact closures.

The available Scan Parameters (below) include the following:



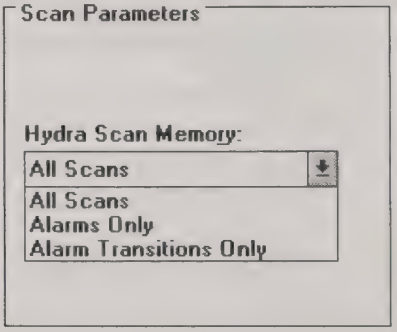
- **Trigger Type – Interval Scanning**. Interval Scanning controls the scan trigger by scan interval. The resolution of interval scanning is 1-second (up to 9 hours, 99 minutes, and 99 seconds).

- **Trigger Type – Interval + External**. Interval + External allows an external source to initiate a single scan. If a scan is already in progress, this request is ignored.
- **Trigger Type – Interval + Monitor Alarm**. Interval + Monitor Alarm allows an alarm condition on the monitor channel to trigger a single scan. If a scan is already in progress, this request is ignored.
- **Trigger Type – External**. External allows an external source to initiate scanning. If a scan is already in progress, this request is ignored.
- **Trigger Type – Monitor Alarm**. Monitor Alarm allows an alarm condition on the monitor channel to trigger scanning. If a scan is already in progress, this request is ignored.

External enables scanning when a low input occurs on the rear-panel TR terminal of the Hydra.

Monitor Alarm triggers a scan when an alarm condition occurs on the monitor channel. External triggering is disabled.

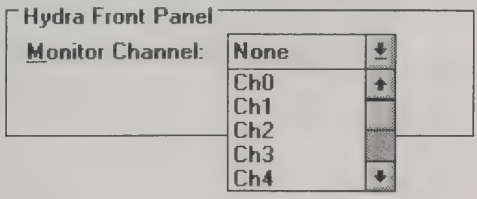
- **Hydra Scan Memory** (below). Establishes what types of scans are saved in the internal Hydra scan memory. If you select All scans, all of the scans of all channels on the Hydra (except those whose function is set to OFF) are recorded into the scan memory. If you select Alarms Only, only those scans that occur while one or more channels are in alarm are recorded [Model 2625A only]. If you select Alarm Transitions Only, only the single scan that occurs when a channel transitions into alarm and the single scan that occurs when a channel transitions out of alarm are recorded [Model 2625A only].



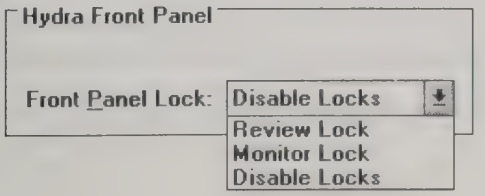
- **Scan Interval**. Sets the period between starts of measurement scans. The scan interval has a resolution of 1 second. The maximum scan interval is 38439 seconds.
- **Wrap Around Logging Mode**. Establishes whether the Hydra stops recording data in internal Hydra scan memory once the memory is full, or continues to record data overwriting the oldest data in scan memory. To stop recording once memory is full, remove the check from the check box. To continue recording data after memory is full, check this selection.

The Front Panel items include:

- **Monitor Channel** (below). Establishes which channel is displayed on the front panel of the Hydra during logging. Runs the monitor function on the selected channel. The selection includes channels 0 through 20, or "None" if no channel is to be displayed.



- **Front Panel Lock** (below). Enables or disables special Hydra lockout modes. If the Front Panel Lock is set to Review Lock, all keys are disabled except the up/down and left/right arrow keys for review of the minimum, maximum, and last values of any channel. If set to Monitor Lock, all keys are disabled except the up/down arrow keys for monitoring any channel. If set to Disable Locks, all key functions on the Hydra are disabled.

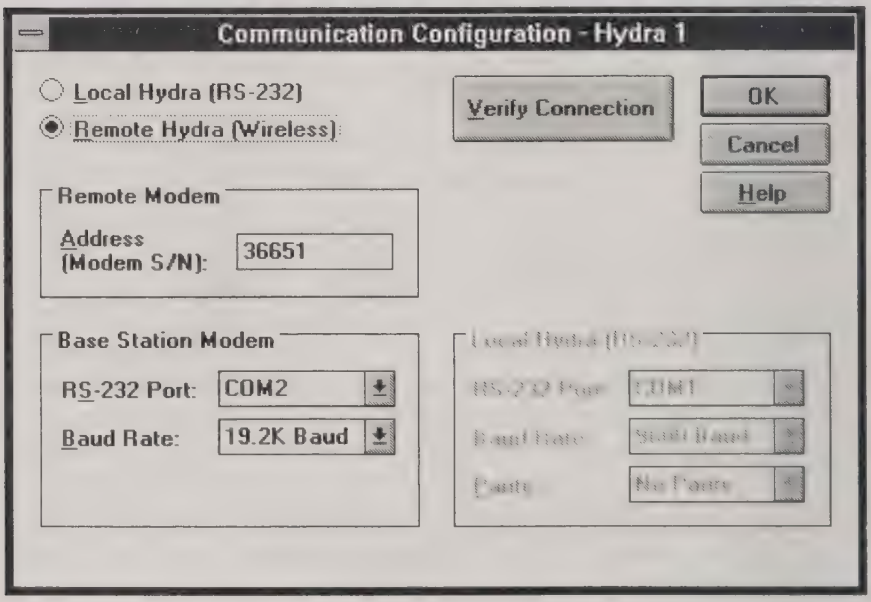


The following buttons in this dialog box open the next level of dialog boxes:

- **Communication...**
- **Channels...**
- **Data File...**

COMMUNICATION...

The Communication Configuration dialog box (below) sets up the communications link between the Base Station and Remote Hydra, or the Local Hydra.



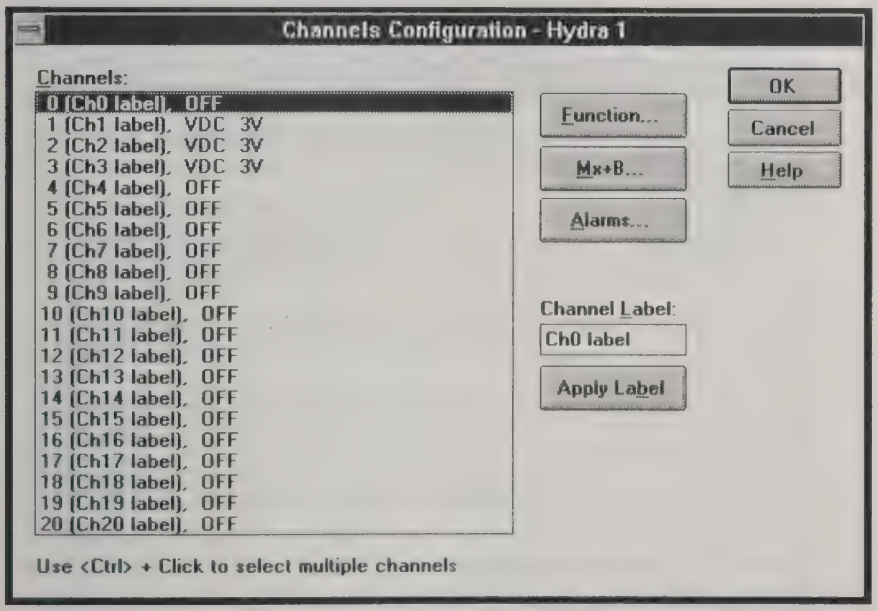
If you select the Local Hydra (RS-232) option button, the Local Hydra information is enabled. Select the RS-232 Port number for the Local Hydra, and set the baud rate and parity for the selected port.

If you select the Remote Hydra (Wireless) option button, the Wireless Logger information is enabled. Enter the address of the remote Wireless modem (the serial number located on the modem label). Select the RS-232 Port number on which the Base Station Wireless modem is connected, and set the baud rate for the selected port.

To test the communications you have set up, click the Verify Connection button. If an error occurs, a diagnostic error message is displayed. (See Appendix C "Error Messages."

CHANNELS...

The Channel Configuration dialog box (below) changes the configuration of a selected group of channels on the Hydra. Use the mouse cursor to select the channel(s) you want to change.



Use the following buttons to change the configuration of the channel(s):

- **Function...**
- **Mx+B...**
- **Alarms...**

To change the label of the selected channel(s), enter the new label in the Channel Label edit box, then click the Apply Label button. If you select more than one channel, the labels of all the selected channels are changed.

Function...

The Function Selection dialog box changes the function configuration of selected Hydra channels.

Select the function you want the channel to perform by using the Function drop-down box.

Use the Range drop-down box to change the range of the function.

Use the RTD R0 edit box to enter the resistance of the RTD at the freezing point (Fahrenheit or Celsius).

Use the Units Label edit box to select the units displayed for the selected Hydra channel.

Mx+B...

The Mx+B Configuration dialog box selects the factor, offset, and display format of an Mx+B measurement for scaled readings on the selected channel of the Hydra.

Use the Mx+B Display Format drop-down box to select the format of the readings output by the Hydra.

Use the Factor (M) and Offset (B) edit boxes to select the M and B scaling values.

Use the Calculate Mx+B from Point Values button to open the Mx+B Calculation dialog box. This dialog box automatically calculates the Factor (M), Offset (B), and display format values. Enter the minimum and maximum values of the input you are using on the selected channel of the Hydra. Enter the minimum and maximum of the output from the Hydra. Click OK to exit the Mx+B Calculation dialog box and place the Mx+B values into the Mx+B Configuration dialog box.

Alarms...

The Alarms Configuration dialog box sets the configuration for the two available alarms for the selected channel on the Hydra.

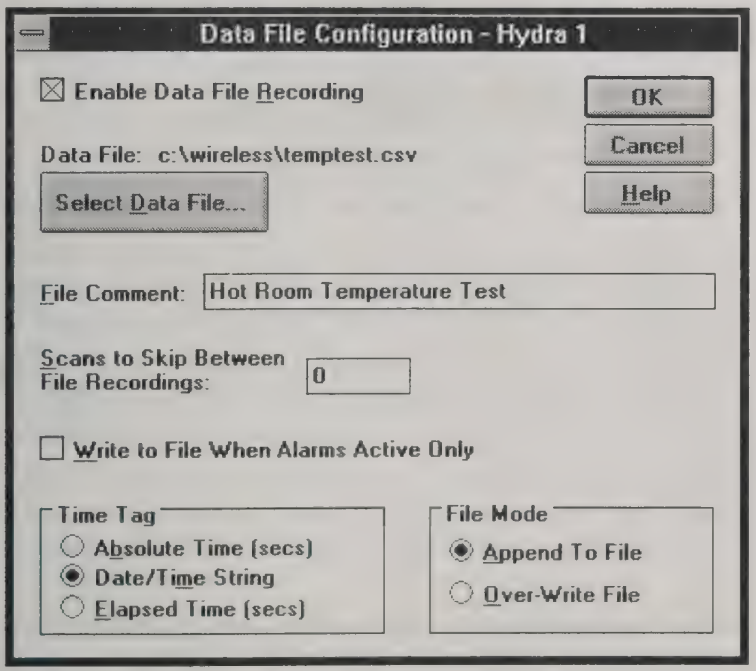
Use the Alarm State drop-down box to set the alarm to either OFF for no alarms, LO for alarms to occur below a certain limit, and HI for alarms to occur above a certain limit.

Use the Alarm Value edit box to set the value at which the alarm is activated.

Use the Digital Output drop-down box to associate alarms for channels 4 though 20 with the rear panel DIGITAL I/O lines of the Hydra. Channels 4 through 20 can be associated with any one or combination of the DIGITAL I/O pins. Note that alarms occurring on channels 0 through 3 are always associated with the rear panel ALARM OUTPUTS (channel 0 to ALARM OUTPUT 0, channel 1 to ALARM OUTPUT 1, etc.).

DATA FILE...

The Data File Configuration dialog box (below) enables or disables data file recording of Hydra scan data and set data file parameters.



To enable data file recording, check the Enable Data File Recording check box. To disable data file recording, remove the check from the Enable Data File Recording check box. All other boxes in the dialog box are disabled, but the information contained in them is retained.

Click the Select Data File button to select the name of the data file.

Use the File Comment edit box to enter a comment to be placed in the data file heading.

Use the Scans to Skip Between File Recordings edit box to select how many scans you want to skip between recordings to the data file. For example, if you select 0, all scans are recorded in the data file. If you select 1, every other scan is recorded.

To write to the data file only when an alarm occurs, check the Write to File When Alarms Active Only check box.

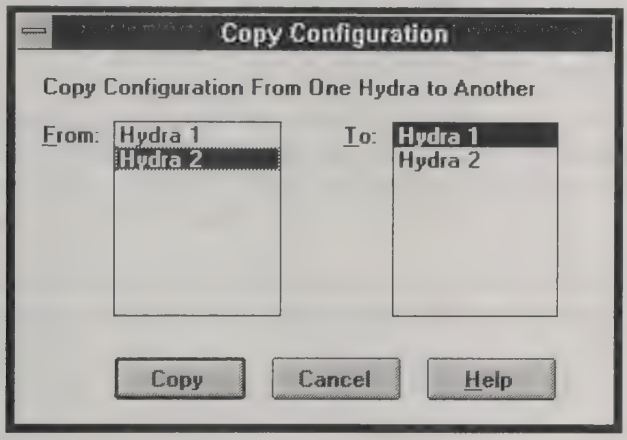
Time Tag sets the format of the time stamp that is recorded at the beginning of each record in the data file. Three types of time stamp can be recorded:

- **Absolute Time (secs)**. Absolute time is the number of seconds since January 1, 1970 at 00:00:00 Universal Coordinated Time (UCT).
- **Date/Time String**. Date/Time String shows the time as a string consisting of the month, day, and year, along with the hour, minutes, and seconds.
- **Elapsed Time** (secs). Elapsed Time shows the time as the number of seconds since the time of the first scan entered into the data file.

The File Mode box lets you select how to write to the data file. To append data to an already existing file, select the Append to File option button. To always overwrite the file at the start of a logging run, select the Over-Write File option button.

Copy Hydra Configuration... 4-8.

The Copy Configuration dialog box (below) copies the configuration from one Hydra to another. Select the Hydra you want to copy the configuration from in the From list box. Select the Hydra you want to copy the configuration to in the To list box. Then click the Copy button. Communication and data file parameters and the Hydra name are not copied.



Save Hydra Configuration Text... 4-9.

The Save Hydra Configuration Text dialog box allows you to save the Hydra configuration to a text file. The text is written to the file in a form similar to that of the display in the Main Window. The configuration information from this file is for documentation purposes only and cannot be loaded into the *Wireless Logger for Windows* application.

Load Logger Setup... 4-10.

The Load Setup File dialog box allows you to select a setup file from which the overall logger setup is to be loaded. The logger setup includes the trend plot configurations. To retrieve a plot after loading a setup, select the plot title from the plot list in the Plots menu.

The *Wireless Logger for Windows* application also accepts the logger setup filename as a command line argument when the application is started up.

Save Logger Setup 4-11.

This menu selection saves the current overall logger setup into the setup file last loaded from or saved to. If no such file exists, this menu selection opens a dialog box that lets you select a setup filename.

Save Logger Setup As... 4-12.

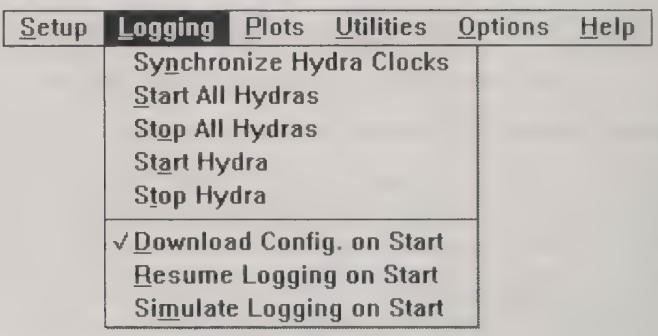
The Save Logger Setup As dialog box lets you save the current overall logger setup into a file with a filename you select.

Exit Application 4-13.

This menu selection closes the *Wireless Logger for Windows* application and all associated trend plots. If changes have been made to the overall setup and have not been saved, you are asked whether you want to save the changes.

LOGGING 4-14.

The Logging menu (below) contains the following selections for starting and stopping logging activity, and for specifying how to start logging:



- **Synchronize Hydra Clocks**
- **Start All Hydras**
- **Stop All Hydras**
- **Start Hydra** (duplicated as a button in the Main Window)
- **Stop Hydra** (duplicated as a button in the Main Window)
- **Download Config. on Start**
- **Resume Logging on Start**
- **Simulate Logging on Start**

After a Hydra has been started, its associated icon in the Hydra Selection menu bar is modified to indicate logging status. The appearance of the icon is different for normal logging and for simulated logging.

Certain menu functions are not available during logging and are disabled. These functions include Hydra configuration changes and any actions that involve communicating with the Hydra.

Synchronize Hydra Clocks 4-15.

This command sets all Hydras to the same date and time. Since *Wireless Logger for Windows* supports versions of Hydra that only allow times to be set with one minute resolution, the times set in the Hydras may be off by up to one minute from the PC system time, but are synchronized with respect to each other. This command is very important for correlating data from multiple Hydras in plotting and data processing.

Start All Hydras 4-16.

This command initiates data collection from all Hydras not already in data collection mode. If starting in the Download Config. on Start mode and a Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. If initiation of data collection for any Hydra fails, an error message is displayed, and the command is aborted.

"All Hydras" refers to the Hydras appearing in the Hydra selection menu bar.

Stop All Hydras 4-17.

This command stops data collection from all Hydras. If scans remain in any Hydra after scanning has been stopped, the remaining scans are read (to abort reading the scans, click the Abort button). "All Hydras" refers to the Hydras appearing in the Hydra selection icon bar.

Start Hydra 4-18.

This command initiates data collection from the selected Hydra. If starting in the Download Config. on Start mode and if the Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. If initiation of data collection fails, an error message is displayed.

Stop Hydra 4-19.

This command stops data collection from the selected Hydra. If scans remain in the Hydra after scanning has been stopped, the remaining scans are read (to abort reading the scans, click the Abort button).

Download Configuration on Start 4-20.

If this menu is checked, the Hydra configuration is downloaded to each Hydra being started when the Start Hydra or Start All Hydras command is selected. The logging memory contents of the being started are cleared.

Resume Logging on Start 4-21.

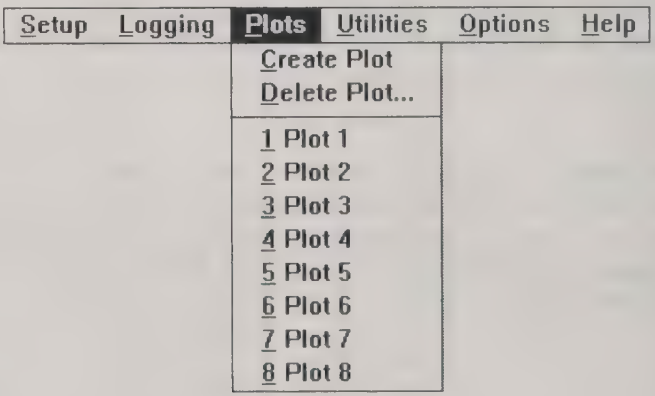
If this menu is checked, the Hydra configuration is uploaded from each Hydra being started. Logging memory is not cleared. (Note: Model 2635A using dc-volt scales 90 mV and 900 mV uploads these scales as Auto.)

Simulate Logging on Start 4-22.

If this menu is checked, data associated with each Hydra comes from a simulated source when the Start Hydra or Start All Hydras command is selected. The simulated data consists of repeated patterns on each channel. This selection is used to try out various configurations and plots before actually logging data with a connected Hydra.

PLOTS 4-23.

The Plots menu (below) creates and deletes trend plot windows, and allows you to directly select any of up to eight trend plot windows. This menu contains the following selections:



- **Create Plot**
- **Delete Plot...**
- **1 Plot 1, 2 Plot 2, etc.**

In addition, each time Create Plot is selected, a new menu selection is added to the Plots menu item. Create Plot creates a trend plot window whose title is added to a numbered list of plots in the Plots menu.

Create Plot 4-24.

This menu selection creates a trend plot window. The trend plot is configured from the plot window's menu system. Up to eight plots can be created. The plots are given default titles, such as 1 Plot 1, 2 Plot 2, etc. Plot titles for each plot are listed in the Main Window Plot menu.

Delete Plot... 4-25.

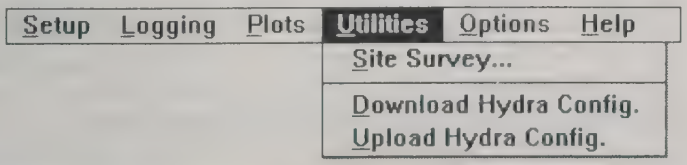
This menu selection opens a dialog box that asks you for the name of the plots to delete. When a deletion is made, a message is displayed warning the user that the plot configuration will be lost.

1 Plot 1, 2 Plot 2, etc. 4-26.

This menu selection causes the plot window with the corresponding title to appear on top of the Main Window. If the plot has been closed, it is reopened. The plot title can be edited from the Labels... menu selection under the Setup menu in the trend plot window. It is listed under the Main Window Plots menu.

UTILITIES 4-27.

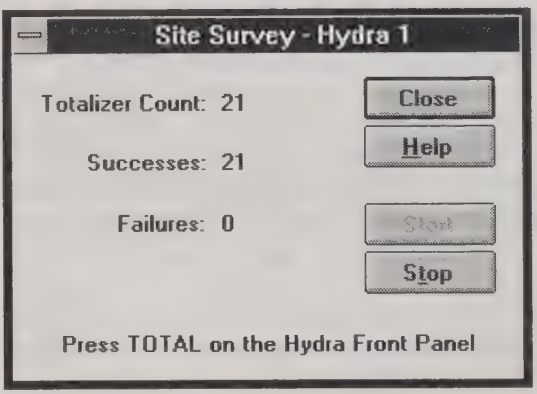
The Utilities menu (below) allows you to perform a site survey to confirm the connection between the base station and the Remote Hydra, and allows you to download and upload the Hydra configuration from the Base Station. This menu contains the following selections:



- **Perform Site Survey...**
- **Download Hydra Configuration**
- **Upload Hydra Configuration**

Perform Site Survey... 4-28.

The Site Survey dialog box for the selected Hydra (below) allows you to start and stop site survey operation. During site survey operation, commands are sent to the Hydra once per second, incrementing the totalizer value on the Hydra display.



To begin the site survey, click the Start button. At the Hydra end, click the TOTAL button on the Hydra front panel and observe the continually incrementing totalizer count to verify successful communication. At the Base Station, communication status (successes and failures) is displayed in the Site Survey dialog box.

Site Survey is only available when logging is turned off for all Hydras (to assure the most accurate results).

If the Host Computer is unable to communicate with the Base Station modem, an error message will occur.

Download Hydra Configuration 4-29.

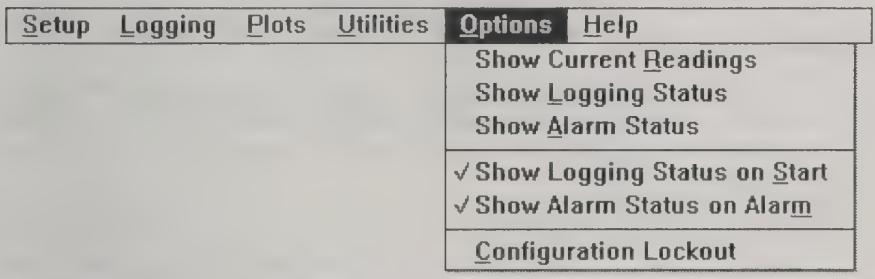
When selected, this command downloads the Hydra configuration from the PC to the Hydra. If the Hydra has scans in its logging memory, a warning message appears, giving you the option to cancel. If you continue, logging memory is cleared. This command applies only to the selected Hydra.

Upload Hydra Configuration 4-30.

When selected, this command uploads the Hydra Configuration from the Hydra to the PC. Logging memory is not cleared as a result of this command. This command applies only to the selected Hydra. When the upload is complete, a warning message appears indicated that channel labels and units labels may be inconsistent with the new uploaded configuration. Be sure to edit these labels to match the new configuration. (Note: Model 2635A using dc-volt scales 90 mV and 900 mV uploads these scales as Auto.)

OPTIONS 4-31.

The Options menu (below) allows you to monitor various status indications from the Remote Hydras. Options also contains a selection that prevents you from changing certain configuration parameters in the Setup menu. The Options menu contains the following selections:



- **Show Current Readings**
- **Show Logging Status**
- **Show Alarm Status**
- **Show Logging Status on Start**
- **Show Alarm Status on Alarm**
- **Configuration Lockout**

Show Current Readings 4-32.

This menu selection displays a table of readings for all 21 Hydra channels, the digital and alarm outputs, and the totalizer count for the selected Hydra. Only one readings table can be viewed at a time. The Readings window does not disable the Main Window while the Readings window is visible. To close the Readings window, select Close from the Readings window control menu.

Show Logging Status 4-33.

This menu selection displays the logging status of each Hydra, including the current scan records in Hydra's scan memory, the total number of retrieved scans since the start of logging, the number of communication errors since the start of logging, and the type of the last communication error. The displayed error message is an abbreviated form of the standard error messages. Use this status window to verify that scans are being retrieved quickly as they are being collected in Hydra scan memory. The scans in Hydra value should always settle down to values below ten. If not, stop logging and increase the scan interval of one or more Hydras, then restart logging and check the logging status window again.

The Logging Status window does not disable the Main Window while the Logging Status window is visible. To close the Logging Status window, select Close from the Logging Status window control menu.

Show Alarm Status 4-34.

If this menu is checked, the Alarm Status window appears on top of the Main Window. This window displays the alarm status of each Hydra, including the current scans in Hydra value, and a list of the channels in alarm for the last scan retrieved.

The Alarm Status window does not disable the Main Window while the Alarm Status window is visible. To close the Alarm Status window, select Close from the Alarm Status window control menu.

Show Logging Status on Start 4-35.

If this menu selection is checked, the Logging Status window appears automatically when the Start Hydra or Start All Hydras command is completed.

Show Alarm Status on Alarm 4-36.

If this menu selection is checked, the Alarm Status window appears automatically when a channel transitions into the alarm state. A beep occurs when the window appears.

Configuration Lockout 4-37.

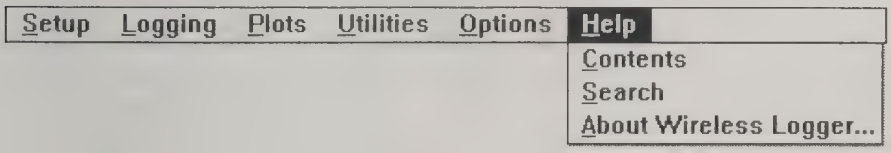
If this menu selection is checked, the following configuration related menu items are disabled from the Setup menu:

- **Create New Hydra**
- **Delete Hydra**
- **Describe Hydra...**
- **Edit Hydra Configuration...**
- **Copy Hydra Configuration...**

The button duplicating the "Edit Hydra Configuration..." function is also disabled.

HELP 4-38.

The Help menu (below) contains the following selections:



- **Contents**
- **Search**
- **About Hydra Logger...**

Selection of the first two menu items opens the Windows Help utility with the corresponding help information. The "About Hydra Logger..." selection opens a dialog box that displays copyright information and the software version number.

Section 5
Pruning and Grafting Utility

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SUMMARY OF PRUNING AND GRAFTING UTILITY 5-1.

Open Pruning and Grafting from the Fluke Wireless Logger group of Program Manager. To toggle between a partial screen and a full screen, type <Alt> <Enter>. The Pruning and Grafting Utility allows data files of potentially thousands of scan records to be reduced to only the records of interest by passing the data through a "filter." The output of the filter is saved in a separate ASCII file. Filter parameters include channels, measurement skipping, averaging, date/time range, greater-than, less-than, and AND/OR value limits.

The utility merges separate data files into a single data file. The source files may be in the binary data file format and ASCII data file format produced by Logger, Starter, and *Wireless Logger for Windows* application software, or memory card binary format (Model 2635A Data Bucket only). Both utility functions can be applied, filtering and combining files simultaneously into a single output file.

The main menu for the utility consists of four menus, FILE, EDIT, GO, and DISPLAY, plus a program setup screen summarizing the parameters of the files and filters. Parameters appear on the program screen as they are selected. A summary of the menu functions and descriptions is shown in Table 5-1.

Table 5-1. Summary of Pruning and Grafting Menus and Windows

FUNCTION	DESCRIPTION	FIGURE
FILE Menu	Manage setup files	5-1
NEW Menu	Resets setup to defaults	5-1
SAVE Menu	Saves the setup	5-1
OPEN Menu	Reads an initialization file	5-2
SAVEAS Menu	Saves setup to an initialization file	5-3
EXIT Menu	Use to exit the utility	5-4
EDIT Menu	Selects files and filters	5-5
Input Files Menu	Selects the input files for merging and filtering	5-6
Output File Menu	Selects the output file for the merged/filtered data	5-7
Channel List Menu	Selects the channels to be filtered and merged	5-8
Filters Menu	Selects the filter parameters for the selected files	5-9
Decimal Point Menu	Selects the data file separator and date format	5-10
File Compatibility Menu	Enables/disables data file compatibility checking	5-10
Horizontal Merging Menu	Selects horizontal or vertical file merging	5-11
GO Menu	Use to initiate the utility to perform its function	5-12
DISPLAY Menu	Selects background format and memory remaining	5-13

FILE Menu 5-2.

The FILE menu (Figure 5-1 sets the initial conditions of the program, and creates, recalls, and saves program setups. The default initialization file `PANDG.PNI` loads the initial program setup.

NEW Menu 5-3.

Select NEW and press <Enter> to reset the program to the default values stored in the current initialization file. Use the entries in the EDIT menu (Figure 5-5) to configure the program setup for the desired operations.

SAVE Menu 5-4.

Select SAVE and press <Enter> to save the program setup in the current initialization file. For example, if the default initialization file `PANDG.PNI` is active, SAVE updates this file with the configuration shown in the program setup screen.

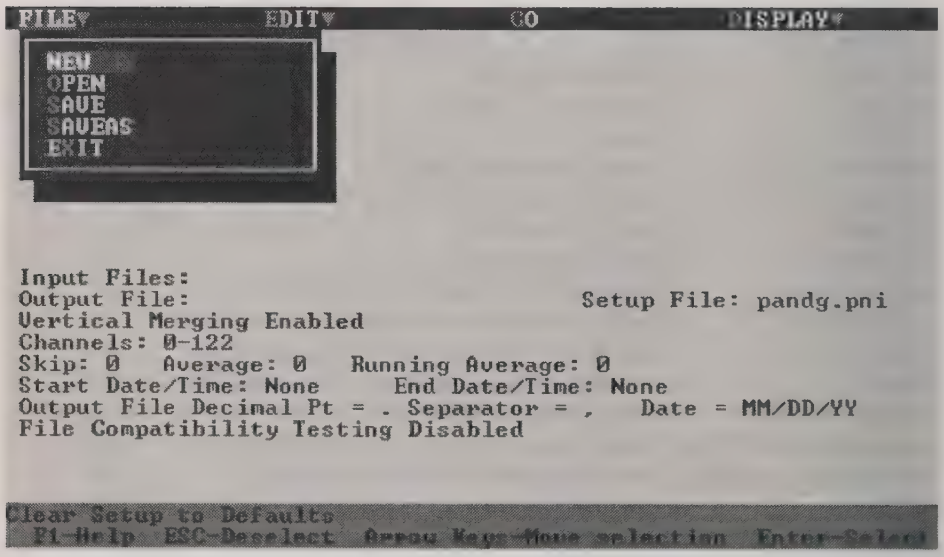

Figure 5-1. FILE Menu

OPEN Menu 5-5.

The OPEN Menu (Figure 5-2) lists all the available program initialization files (default extension `*.PNI`). Use the SAVEAS menu (Figure 5-3) to save program initialization files. To load the initialization defaults into the program setup, select a file then press <Enter>.

The example in Figure 5-2 shows selection of the file `PANDG04.PNI`. Press <Enter> to change the program setup screen to the parameters saved in selected file.

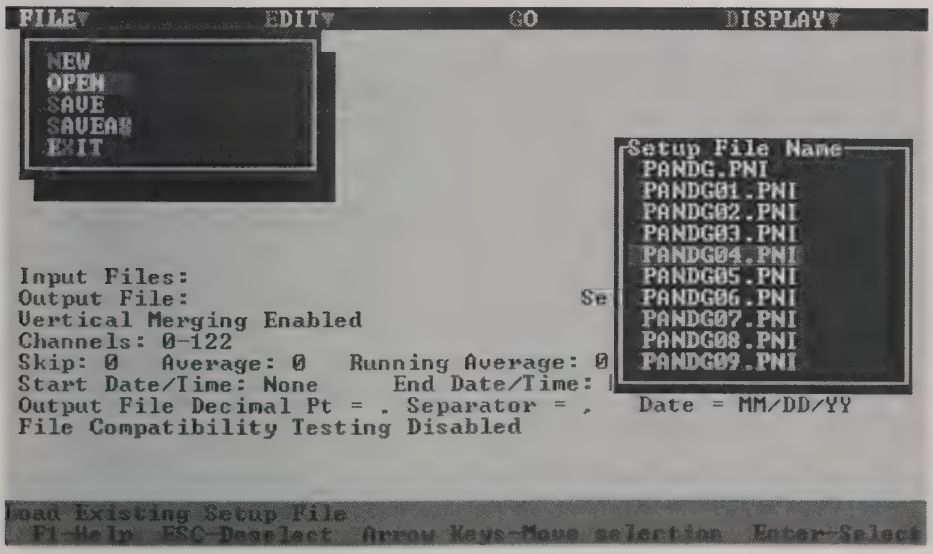

Figure 5-2. OPEN Menu

SAVEAS Menu 5-6.

Select SAVEAS and press <Enter> to save the program setup as an initialization file (Figure 5-3). A prompt asks for the name of the file.

NOTE

If the file name already exists, it is overwritten without warning.

The example in Figure 5-3 shows the program setup is saved in the file `PANDG09.PNI`.

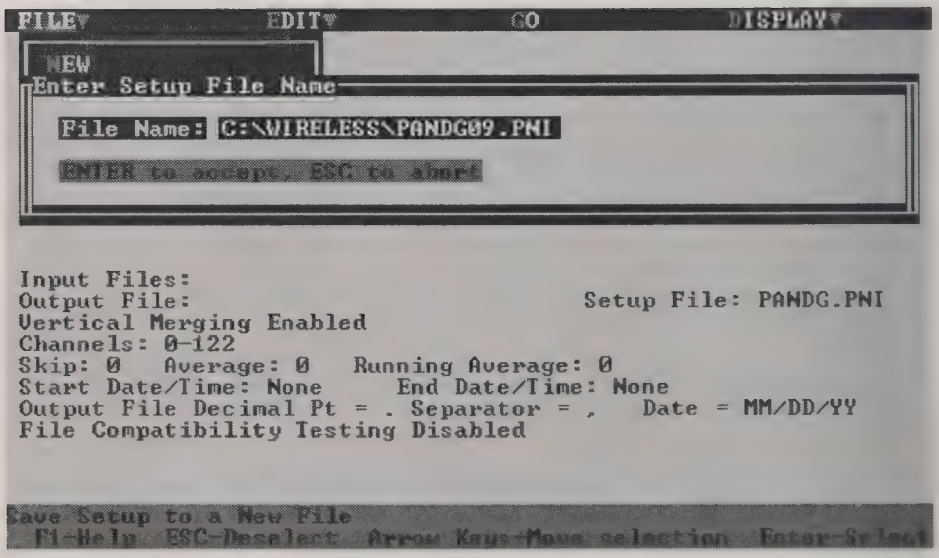

Figure 5-3. SAVEAS Menu

EXIT Menu 5-7.

Use the EXIT menu (Figure 5-4) to exit the Pruning and Grafting Utility. When the utility is initialized, the file PANDG.PNI provides the setup defaults, as does any subsequent OPEN menu selection (Figure 5-2). If any parameter is changed during operations, the program asks if the changes should be saved before quitting. If you select Y (Yes), a window requests the name of the initialization file in which to store the changes. This can be the current initialization file, a different file, or a new file to be created. If you select N (No), the changes to the defaults are not changed, and the next window verifies the Exit operation, where Y will exit the program, and N will return to the main menu.

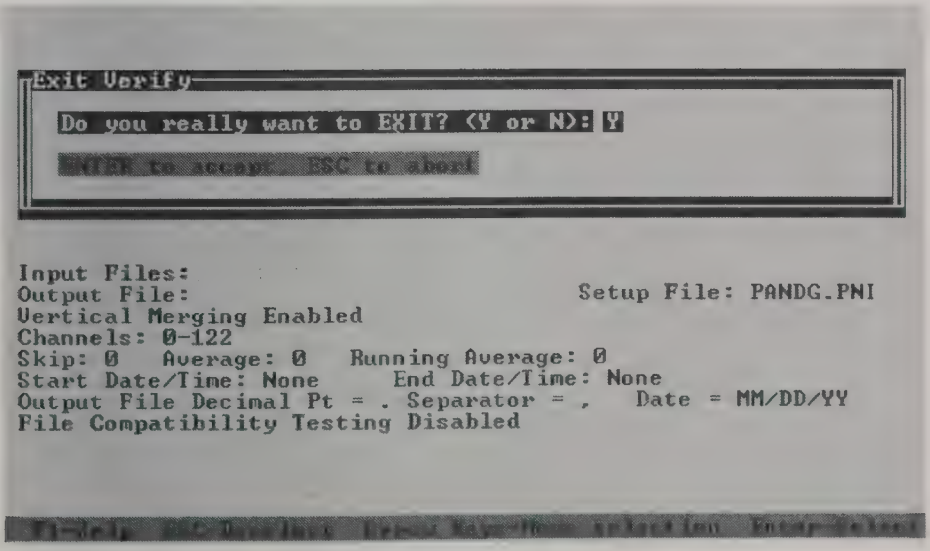
Exit Verify
Do you really want to EXIT? (Y or N): Y
Input Files:
Output File:
Setup File: PANDG.PNI
Vertical Merging Enabled
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Disabled

Figure 5-4. EXIT Menu

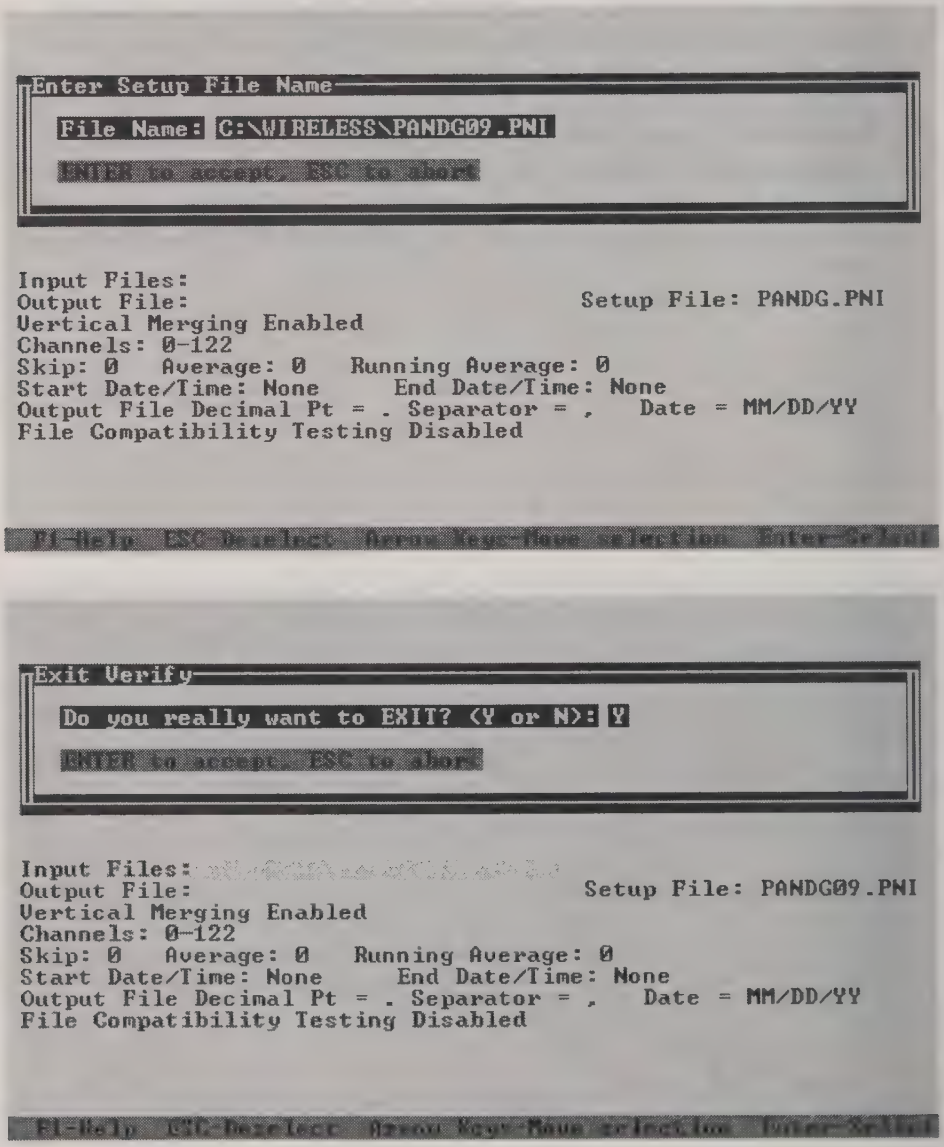
Enter Setup File Name
File Name: C:\WIRELESS\PANDG09.PNI
ENTER to accept, ESC to abort
Input Files:
Output File:
Setup File: PANDG.PNI
Vertical Merging Enabled
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Disabled
Exit Verify
Do you really want to EXIT? (Y or N): Y
ENTER to accept, ESC to abort
Input Files:
Output File:
Setup File: PANDG09.PNI
Vertical Merging Enabled
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Disabled

Figure 5-4. EXIT Menu (cont)

EDIT Menu 5-8.

The EDIT menu (Figure 5-5) selects the files and filters, the decimal point, file compatibility testing, and horizontal merging features.

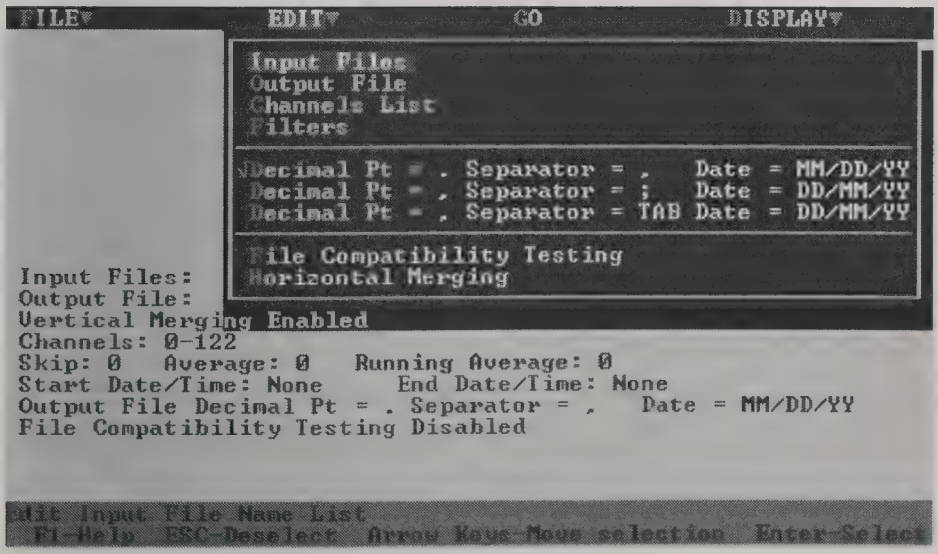
FILE
EDIT
GO
DISPLAY
Input Files
Output File
Channels List
Filters
Decimal Pt = . Separator = , Date = MM/DD/YY
Decimal Pt = , Separator = ; Date = DD/MM/YY
Decimal Pt = . Separator = TAB Date = DD/MM/YY
File Compatibility Testing
Horizontal Merging
Input Files:
Output File:
Vertical Merging Enabled
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Disabled
Edit Input File Name List
F1-Help ESC-Deselect Arrow Keys-Move selection Enter-Select

Figure 5-5. EDIT Menu

Input Files Menu 5-9.

The Input Files menu (Figure 5-6) records the file names for filtering or combining, or both filtered and combined as a simultaneous operation. If no filters are specified, the files simply combine into an ASCII output file. If only a single file is entered, it can be filtered with the results sent to an output file. Enter up to 10 files. A full path name is used if the file is not in the current directory.

The example in Figure 5-6 shows five files `LOGDATA1.DAT` through `LOGDATA5.DAT` will be filtered and combined.

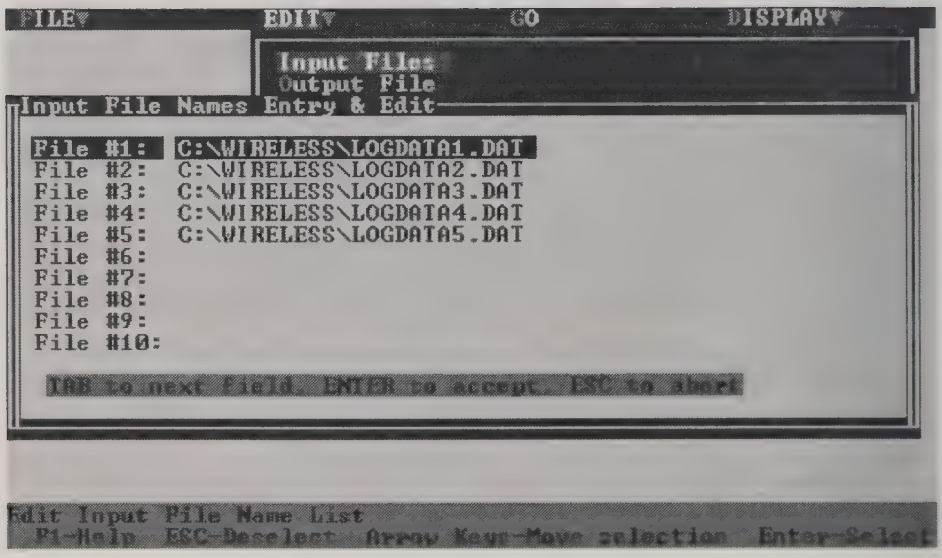

Figure 5-6. Input Files Menu

Output File Menu 5-10.

The Output File menu (Figure 5-7) specifies the name of the output file for the filtered and combined data. Output files are always in ASCII format.

NOTE

If an existing file name is selected, it is overwritten without warning.

The example in Figure 5-7 shows the output file name `SUMMDATA.DAT`. After pressing <Enter>, the program setup screen changes the Output File: entry from blank (as shown in Figure 5-7) to `SUMMDATA.DAT`.

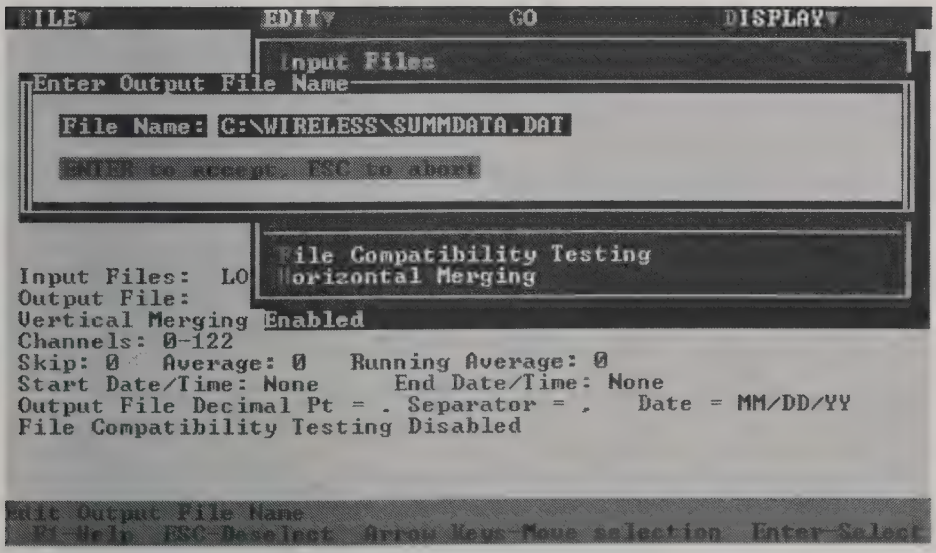

Figure 5-7. Output File Menu

Channels List Menu 5-11.

The Channels List menu (Figure 5-8) selects the channel or groups of channels to be included in the output file. Channels for instrument 1 are in the range 0 to 22 (including two pseudo channels – see below), and for instrument 2, in the range 100 to 122. For example, to filter the measurement data for instrument 1, channel 16, the number 16 would be entered; to filter the measurement data for instrument 2, channel 6, the number 106 would be entered.

To specify groups of channels, use the "-" and "," characters. For example, 0,5,9,10 selects instrument 1, channels 0, 5, 9, and 10. The entry 105-115 specifies instrument 2, channels 5 to 15. To filter Totalizer and Alarm data, pseudo channels are assigned with channel 21 representing the Totalizer data and channel 22 representing the Alarm data. For example, an entry of 22 filters the alarm data for instrument 1; an entry of 121 filters the totalizer data for instrument 2.

The example in Figure 5-8 shows the entry 100-122, selecting instrument 2, channels 0 to 20, plus the two pseudo channels 21 (Totalizer) and 22 (Alarms). After pressing <Enter>, the program setup screen changes the Channels: entry from 0-122 (as shown in Figure 5-8) to 100-122. To select all channels, enter ALL; to select channels that are active, enter ON.

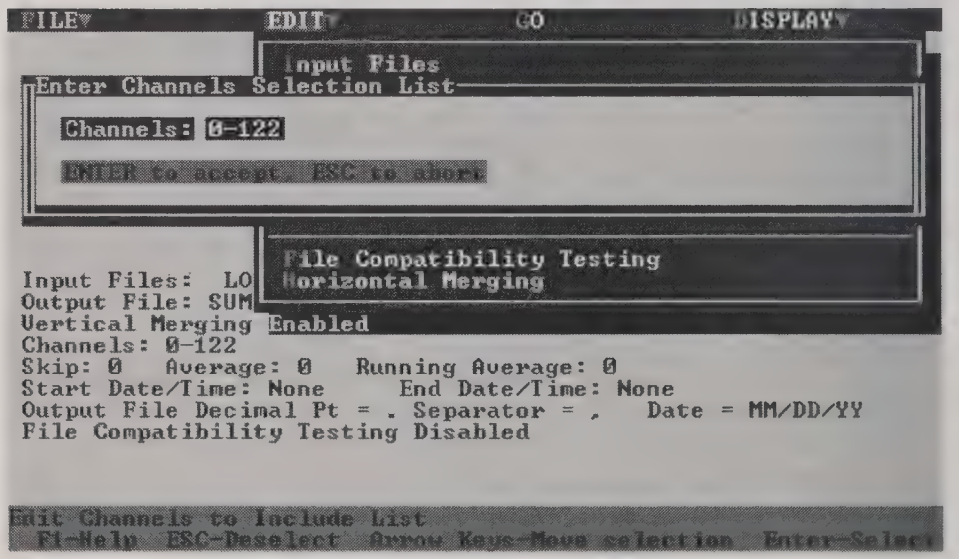

Figure 5-8. Channels List Menu

Filters Menu 5-12.

The Filter menu (Figure 5-9) filters the scan records for the selected channels (Figure 5-8). Each scan record is compared to the parameters specified in this menu. If the scan record meets the specified requirements, it is recorded into the output file (Figure 5-7). Each filter parameter is described below.

SKIP COUNT

The Skip Count simply skips over n scan records. For example, if a file has 5,000 scan records this can be reduced to 1,000 scan records by entering the number 4 (read, skip, skip, skip, skip, read, skip, skip, skip, skip, read, etc.)

AVERAGE COUNT

The Average Count entry averages readings into a one reading. For example, a file with 5,000 scan records can be reduced to 1,000 averaged scan records by entering the number 5 (read, read, read, read, read, average, read, etc.).

RUNNING AVERAGE COUNT

The Running Average Count levels the averaging output. The higher the entry, the more intense the leveling. This is a leveling function only; input scan records equals the number of the output scan records. Leveling is based on the following algorithm: Xout = (Xlast x (n-1) + Xcurrent)/n, where:

Xout = Value of the output scan record (the leveled value)
Xlast = The value of the previous Xout
Xcurrent = The value of the current recorded scan record
n = The number entered in this menu (shown as 3 in Figure 5-9)

A special case is Xout = Xfirst, where Xfirst is the very first scan record.
An example for n=3 and ten measurements is:

Input scan record values: 110, 113, 117, 110, 118, 114, 111, 116, 117, 112
Output scan record values: 110, 111, 113, 112, 114, 114, 113, 114, 115, 114

The first Xout value is equal to the Xfirst, which is 110
then in sequence: Xout = (110 x (3-1) + 113)/3 = 111
Xout = (111 x (3-1) + 117)/3 = 113
Xout = (113 x (3-1) + 110)/3 = 112
Xout = (112 x (3-1) + 118)/3 = 114
Xout = (114 x (3-1) + 114)/3 = 114
Xout = (114 x (3-1) + 111)/3 = 113
Xout = (113 x (3-1) + 116)/3 = 114
Xout = (114 x (3-1) + 117)/3 = 115
Xout = (115 x (3-1) + 112)/3 = 114

START DATE/END DATE

Scan records can be filtered by date and time. The format is MM/DD/YY (Month/Day/Year [or Day/Month/Year - See Figure 5-5]) and HH:MM:SS (Hours/Minutes/Seconds). For example, 07/21/94 15:00:00 as a Start Date and 07/22/94 22:00:00 as an End Data specifies that only the scan records within these date/time limits are recorded.

RECORD ONLY WHEN GREATER THAN/LESS THAN

Further filtering is provided by channel readings above or below a specified value. When this filtering is desired, a check mark is placed in the box, a channel is specified, and then the "Greater Than" and/or "Less Than" value is entered. The operating mode of these filters is in either an OR configuration, where scan records are recorded when either the Greater Than OR Less Than conditions are met, or in an AND configuration where both the Greater Than AND Less Than conditions are met.

The example in Figure 5-9 shows scan values are recorded only when channel 5 measurements are greater than 120 AND channel 8 measurements are less than 110.

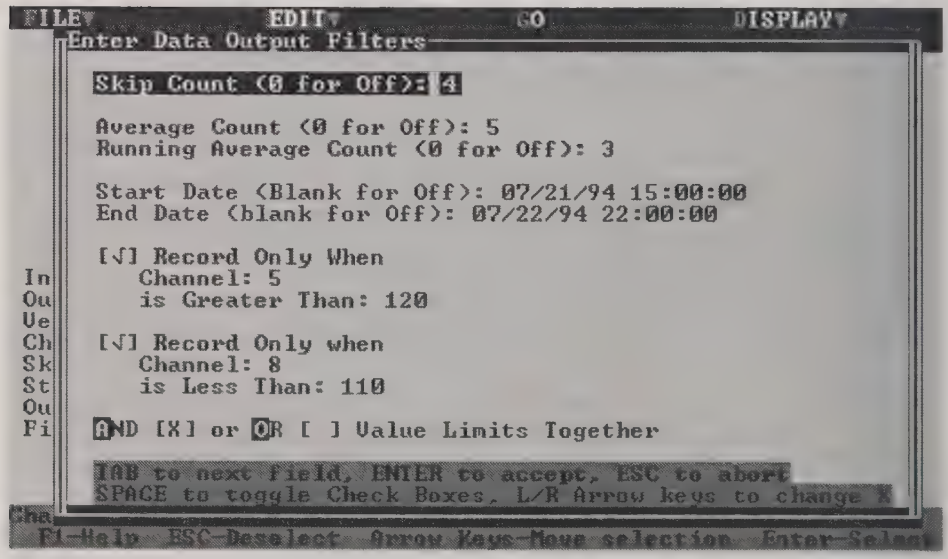
FILE
EDIT
GO
DISPLAY
Enter Data Output Filters
Skip Count (0 for Off): 4
Average Count (0 for Off): 5
Running Average Count (0 for Off): 3
Start Date (Blank for Off): 07/21/94 15:00:00
End Date (blank for Off): 07/22/94 22:00:00
[√] Record Only When
Channel: 5
is Greater Than: 120
[√] Record Only when
Channel: 8
is Less Than: 110
AND [X] or OR [ ] Value Limits Together
TAB to next field, ENTER to accept, ESC to abort
SPACE to toggle Check Boxes, L/R Arrow keys to change
F1-Help ESC-Deselect Arrow Keys-Move selection Enter-Select

Figure 5-9. Filters Menu

Decimal Point Menu 5-13.

The Decimal Pt menu (Figure 5-10) specifies how numbers are saved in the output ASCII file, as follows:

Separator = ,	12.345,23.456,34.567
Separator = ;	12,345;23,456;34,567
Separator = <TAB>	12,345 23,456 34,567

These selections also set the date-reporting format Month/Day/Year (decimal point ".") or Day/Month/Year (decimal point "," or "<TAB>").

File Compatibility Testing Menu 5-14.

The File Compatibility Testing menu (Figure 5-10) enables/disables input file compatibility testing. For example, combining two files where Channel 1 measures ohms in one file and volts dc in the other results in meaningless data for channel 1 in the output file. Files are checked during GO (Figure 5-12).

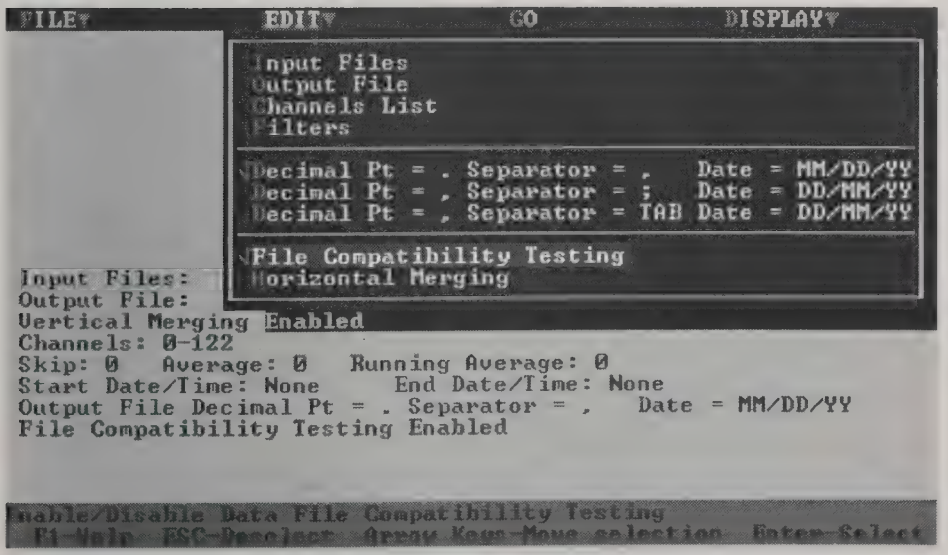
FILE
EDIT
GO
DISPLAY
Input Files
Output File
Channels List
Filters
Decimal Pt = . Separator = , Date = MM/DD/YY
Decimal Pt = , Separator = ; Date = DD/MM/YY
Decimal Pt = , Separator = TAB Date = DD/MM/YY
File Compatibility Testing
Horizontal Merging
Input Files:
Output File:
Vertical Merging Enabled
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Enabled
Enable/Disable Data File Compatibility Testing
F1-Help ESC-Deselect Arrow Keys-Move selection Enter-Select

Figure 5-10. Decimal Point and File Compatibility Testing Menu

Horizontal Merging Menu 5-15.

The Horizontal Merging Menu (Figure 5-11) selects Horizontal or Vertical merging. Vertical merging (default) .merges multiple files that contain data acquired at different times. The data is placed in date/time order in a single output file.

Horizontal merging is used to merge multiple data files that contain data acquired at somewhat the same time. Data from scan records from each file are merged into that scan record from the first file that has the closest match in time and then output to a single output file.

Using a comparison to a spreadsheet, vertical merging places the scan records from each file in different rows, according to date/time order; Horizontal merging places scan records with similar data/time tags on the same row, creating more columns then existed on any of the input files.

When horizontal merging is enabled, you may enter a "delta time" that is used to determine which records are merged. The larger the delta time, the more time is allowed between records from the different input files. When horizontal merging is enabled, channels in the first input file are selected by channel numbers 0-22; channels in the second file are selected by numbers 100-122, etc.

The example in Figure 5-11 shows Horizontal merging with a delta time of 10.

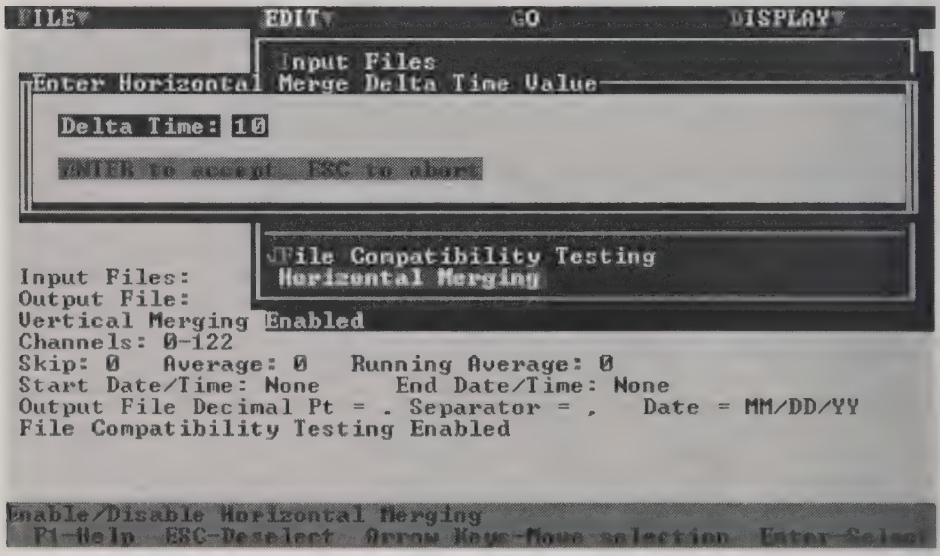

Figure 5-11. Horizontal Merging Menu

GO Menu

5-16.

The GO menu (Figure 5-12) initiates a Pruning and Grafting run with the configuration shown in the program setup screen. If File Compatibility Testing is enabled (Figure 5-5), the input files are checked before pruning and grafting. An error message appears if file compatibility testing fails, halting the Pruning and Grafting run.

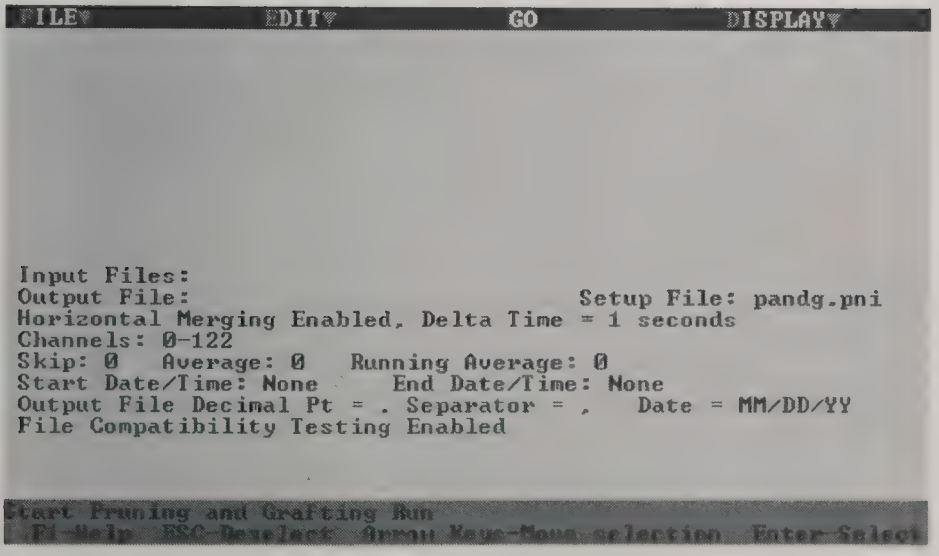
FILE
EDIT
GO
DISPLAY
Input Files:
Output File:
Setup File: pandg.pni
Horizontal Merging Enabled, Delta Time = 1 seconds
Channels: 0-122
Skip: 0 Average: 0 Running Average: 0
Start Date/Time: None End Date/Time: None
Output File Decimal Pt = . Separator = , Date = MM/DD/YY
File Compatibility Testing Enabled
Start Pruning and Grafting Run
F1-Help ESC-Deselect Arrow Keys-Move selection Enter-Select

Figure 5-12. GO Menu

DISPLAY Menu 5-17.

The Display menu (Figure 5-13) gives a choice of a light screen background or dark screen background. "PC Memory Remaining" reports the conventional DOS memory available after the utility is loaded. If the PC is overloaded with software programs, the Memory Left could fall below 32000 bytes, which is the minimum number for the utility to perform properly.

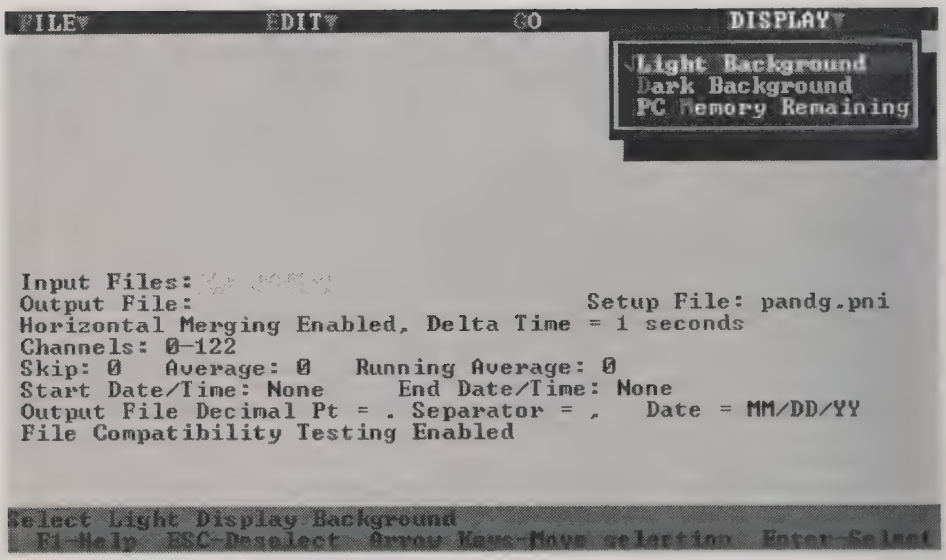

Figure 5-13. DISPLAY Menu

Section 6
Maintenance

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6-3. Operating Mode Errors 6-3
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6-5. WIRELESS MODEM SERVICING INFORMATION 6-5
6-6. WIRELESS LOGGER TOOL REPLACEMENT PARTS 6-6

INTRODUCTION 6-1.

Maintenance procedures in this manual are limited to the wireless modem information and a listing of replacement parts. Refer to the following Hydra manuals for Hydra maintenance information:

- **2625A Hydra Data Logger**. *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket**. *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

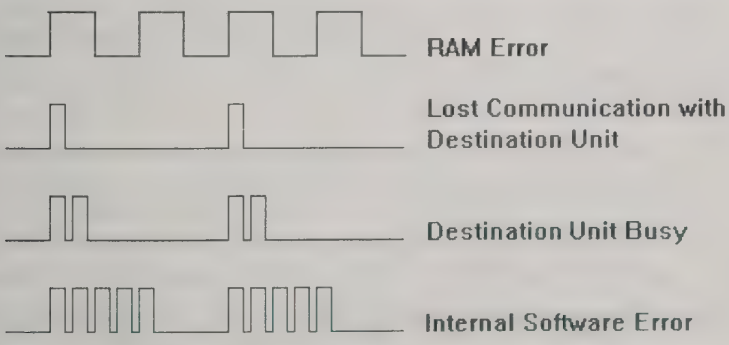
A Hydra Service Manual (Part Number 889589) is available for purchase. This Service Manual covers three Hydra instruments: 2620A Data Acquisition Unit, 2625A Data Logger, and 2635A Data Bucket.

WIRELESS MODEM ERROR CODES 6-2.

There are two types of wireless modem errors: Operating Mode Errors, and Configuration Mode Errors. Each is discussed below.

Operating Mode Errors 6-3.

The Proxim ProxLink XR wireless modem performs an internal self-check each time the modem is powered. The result of the self-check is indicated by the wireless modem PWR indicator. A steady PWR light verifies a successful self-check; a blinking PWR light indicates an error. Error codes are signaled by blinking the PWR light in various patterns, as follows:



The Lost Communication with Destination Unit, and Destination Unit Busy errors appear in a point-to-point configuration. The Wireless Logger tool does not use the point-to-point configuration; therefore, these errors will not appear.

RAM Error. If the power LED is flashing evenly, a RAM error occurred during boot up. Unplug the wireless modem power module and then plug it in again. If the error indication continues, the unit has failed and must be returned for service.

Lost Communication with Destination Unit. If the power LED is flashing one count, the unit has a point-to-point configuration and it can no longer communicate with the remote unit. In this case, the error likely means that the remote unit is either out of range or has been turned off. A unit will enter this error state only after it has made numerous attempts to reestablish communication. [This application of the wireless modem does not use a point-to-point configuration and this error should not occur.]

Destination Unit Busy. If the power LED is blinking two counts, the unit has a point-to-point configuration and can no longer communicate with the remote unit. In this case, the error indicates that the remote unit configuration is no longer set up for point-to-point communication with this unit. [This application of the wireless modem does not use a point-to-point configuration and this error should not occur.]

Internal Software Error. If the power LED is blinking five counts, the unit has experienced an internal error. Unplug the wireless modem power module and then plug it in again. If the error indication continues, the unit has failed and must be returned for service.

Configuration Mode Errors 6-4.

Wireless modem Configuration Mode Errors are ASCII strings relayed from the Base Station wireless modem to the Host Computer, over the RS-232 connection during wireless modem configuration. Each error and description is listed below.

- **The input given was too long!** The number of characters in the last input line is longer than the maximum number of characters expected.
- **Invalid number!** The last input line has an invalid format. This is different from the "Value given in not in range allow!" error message.
- **Value given is not in range allowed!** the last input line specified a value that is not in range for the parameters being specified.
- **Invalid option!** The menu option selected is not one of the valid options for the current menu.

- **Serial #nnnnn, is not responding!** This message occurs when the remote unit (serial number nnnnn) is not responding correctly to messages during a remote configuration. The remote unit in this case is in a state where it is ignoring remote configuration requests. This situation occurs only when the unit is in the process of being configured by yet a different unit.

- **Serial #nnnnn, ignored request!** This message occurs when the remote unit (serial number nnnnn) is not responding correctly to messages during a remote configuration. The remote unit in this case is not responding to radio messages. The unit is probably: (1) turned off, (2) set to a different radio channel, (3) set to a different network subchannel, (4) currently in the user interface mode, or (5) defective.

- **Serial #nnnnn, has already been remotely configured!** This message occurs when the remote ProxLink unit (serial number nnnnn) is not responding correctly to messages during a remote configuration. the remote unit is this case has already been remotely configured for a point-to-point communication by another unit. In this case, the user is given the option of overriding the remote unit's configuration.

- **Serial #nnnnn, has already been locally configured!** This message occurs when the remote ProxLink unit (serial number NNNNN) is not responding correctly to messages during a remote configuration. The remote unit in this case has already been configured using its own user interface. In this case, the user is given the option of overriding the configuration of the remote unit.

WIRELESS MODEM SERVICING INFORMATION 6-5.

The wireless modems are not user serviceable. During the warranty period, return any unit that fails to a Fluke Service Center for repair or replacement (See Appendix E for a list of Service Center locations.) After the warranty period, you may elect to return the unit to a Fluke Service Center for repairs, or return the wireless modem directly to the Proxim factory. When returning the unit to the Proxim factory, telephone first (415) 960-1630 for a Return Merchandise Authorization (RMA) number, and then ship the unit, with the RMA number displayed on the shipping label, to Proxim, 295 N. Bernardo Avenue, Mountain View, California 94043.

WIRELESS LOGGER TOOL REPLACEMENT PARTS 6-6.

Replacement parts are shown in the following table. To order replacement parts in the USA, call 1-800-526-4731. To order parts from outside the USA, contact the nearest Fluke Service Center. (See Appendix E for a list of Service Center locations.) Other Wireless Logger components, options, and accessories are listed in Table 1-1.

Part Number	Description
485706	Two-Receptacle Power Cable
868153	DB25-to-DB9 Cable Adapter
897256	Wireless Modem, Proxim ProxLink XR [Note 1]
929018	Short RS-232 Cable (Hydra to Wireless Modem)
929034	Wireless Modem Power Module (Remote) [Note 2]
929138	Wireless Modem Antenna
929141	Wireless Modem Power Module (Base Station) [Note 2]
929146	Wireless Modem RS-232 Cable
929166	Modem Labels
929380	Wireless Modem Antenna 90-degree SMA adapter
936562	Wireless Logger Data Acquisition Tool Manual

Note 1. The Proxim ProxLink XR Wireless Modem can be repaired or replaced under the Fluke Module Exchange Program (MEP). Contact your nearest Fluke Service Center for instructions. (See Appendix E for a list of Service Centers.)

Note 2. If either modem power module should fail, use only the factory replacement part. The modem power module electrical and physical characteristics must be exact.

Appendices

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Appendix A
Specifications

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INTRODUCTION A-3

INTRODUCTION

The specifications presented here apply only to the Proxim ProxLink XR Wireless Modem. Specification for the Hydras may be found in one of the following manuals:

- **2625A Hydra Data Logger**. *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- **2635A Hydra Data Bucket**. *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

Wireless Modem Specifications

Specification	Description
Serial Interface	
Data Rates	1.2K, 2.4K, 4.8K, 9.6K, 19.2K Baud
Data Format	8 Data Bits, No Parity, 1 Stop Bit
Flow Control	CTS, DSR, XON/XOFF
Connector	DB9 - 9-pin Female D Connector
Radio	
Model	RDA-500
Power Output	500 mW (Nominal)
Data Rate	121 Kbps
Total Channels	7
Independent Channels	4
Nominal Range	800 Feet
Power	
Power Connector	2.5mm male DC Power Jack
Required Source	9V dc (9.5V dc maximum)
Transmit Current	350 mA @ 9V dc
Receive Current	150 mA @ 9V dc
Standby Current	15 mA @ 9V dc
Power Up Time	Less than one second
Packaging	
Antenna	1/4-wave with 0 dB gain (approx. 4-inches)
Package Size (without Antenna)	4.0" x 6.5" x 0.75"
Weight (with Antenna)	12 oz.
LEDs	Power, Carrier Detect, Receive Data

Wireless Modem Specifications (cont)

Environment	
Temperature - Operating	-20° to +60° C
Temperature - Storage	-50° to +85° C
Relative Humidity	20% to 90% (non-condensing)
Software	
Operating Modes	Off-line Configuration
Pass-Through	Transparent to application
Packetized	Real-time configuration, message, and status commands
Message Format Options	Line length, delimiters, and input time-out
Network Parameters	
Channel Options	Radio channel and security subchannel (16 bits)
Outgoing Messages	Directed or Broadcast
Incoming Messages	Directed, Broadcast or all
Packetized Mode Features	Radio signal strength, standby mode, message status, and error report

Appendix B
File Formats

CONTENTS

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FILE FORMATS B-1

FILE FORMATS

The data file is maintained in comma-separated ASCII format (identical to the Hydra Logger ASCII data file format). The ASCII format is compatible with data analysis and management tools running simultaneously in other computers on a network.

Data files are opened in SHARED mode with write blocked. This enables network reads but no writes of the data file while scan data is being recorded. Between scans, the file is closed, allowing full network access to the file (including delete if allowed by the security level enabled on the Host Computer). If the file disappears between one scan and the next, a new file (including header and with the previous file name) is created before new scan data is recorded.

The comma separated ASCII file format is as follows (<EOL> means "end of line", a <CR><LF> sequence):

- File name string (< 15 characters) followed by:
- Special format (internally-used) string (8 characters) <EOL>
- Date and time file was created <EOL>
- File Comment(< 70 characters) <EOL>
- Number of Hydras (always 1) <EOL>
- Channel Units string (25 comma-separated strings) <EOL>
- Scan Record 1 <EOL>
- Scan Record n <EOL>

Each scan record consists of the Hydra timestamp (the user's choice of absolute time, date/time string, or elapsed time) and a comma-separated list of channel readings (including the DIO word, and totalizer). The strings are surrounded by quotes to allow direct importation into spreadsheet programs and other data analysis and presentation packages.

In this format, each recorded scan consumes about 300 bytes. A 1 Megabyte file can store about 3330 scans.

Appendix C
Error Messages

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INTRODUCTION C-1.

This appendix provides a summary of all possible *Wireless Logger for Windows* error messages. The following paragraphs identify the group messages, which is followed by the individual messages found in each group.

GROUP ERROR MESSAGES C-2.

Error Messages C-3.

A variety of error messages may occur during operation of the Wireless Logger data acquistion tool (Wireless Logger tool). In most cases, the problems causing the errors may be fixed relatively easily.

If you have received an error message, check the list below for clues as to what caused the error, and refer to the individual error messages that follow:

Errors When Starting Application C-4.

Window creation failed!

Error registering window class!

Wireless Logger is already running!

Must run in protected mode (standard or enhanced)!

Unable to initialize DDE!

No timers available! Close another application and try again!

Errors When Starting Hydra C-5.

Hydra X: No channels defined!

Hydra X: N scan(s) in Hydra memory will be lost!

Hydra X: Calibration Corrupted! Continue?

Hydra X: Date/Time Corrupted! Check Hydra clock.

Errors When Opening or Creating New Windows C-6.

Unable to Create Plot Window!

Maximum number of plots reached!

Low on memory!

Maximum number of Hydras reached!

Errors When Logging C-7.

Cannot close application while Hydras are logging!

Hydra X: Cannot change Configuration while logging!

Hydra X: Communication Interruption!

Hydra X: Hydra Scan Memory Full!

Hydra X: Unable to Write to Data File!

File Related Errors C-8.

Unable to Open Setup File!

Unable to Write to Setup File!

Setup File is Invalid!

Unable to Create Configuration Text File!

Unable to Write to Configuration Text File!

Hydra X already has this filename!

Communication Errors C-9.

Hydra X: Hydra Execution Error!

Hydra X: Hydra Command Error!

Hydra X: RF Transmission Error!

Hydra X: Time-out waiting for Hydra!

Hydra X: Time-out waiting for Base Station!

Hydra X: RS-232 Communications Error!

Hydra X: Not enough memory to perform operation!

Hydra X: Unable to initialize communications port!

Hydra X: Unsupported model or version of Hydra!

INDIVIDUAL ERROR MESSAGES C-10.

Window creation failed! C-11.

The application was unable to create a new window. This error may occur if not enough memory is available. Close some applications, or exit and restart Windows, then try again.

Error registering window class! **C-12.**

The application was unable to register the window class. This error may occur if not enough memory is available. Close some applications, or exit and restart Windows, then try again.

Wireless Logger is already running! **C-13.**

Only one instance of the *Wireless Logger for Windows* application may be open at once. Either close the existing application and begin again, or use the application that is already open.

Must run in protected mode (standard or enhanced)! **C-14.**

Restart Windows to run in protected mode (standard or enhanced).

Unable to initialize DDE! **C-15.**

An error occurred while trying to initiate DDE. Try closing some other applications that are currently using DDE and try again.

No timers available! **C-16.**

Wireless Logger for Windows requires the use of a timer. This error occurs when all timers (a limited Windows resource) are being used by other applications. Close some applications that are using timers (for example, the clock application under Windows Accessories) and try again.

Hydra *X*: No channels defined! **C-17.**

None of the channels on Hydra X has been defined. You must define at least one channel for the Hydra before attempting to start logging with the Hydra.

Hydra *X*: *N* scan(s) in Hydra memory will be lost! **C-18.**

This warning occurs when a Hydra configuration is about to be downloaded to the Hydra, and scans still in Hydra memory will be cleared as a result. Scans may be left in Hydra memory if some loss of communication has occurred, or if *Wireless Logger for Windows* attempts to retrieve the remaining scans after you stop logging and you abort the retrieval.

To continue and erase the stored scans, click Yes. To cancel, click No.

If you are attempting to start the Hydra logging but do not want to lose the scans currently in Hydra memory, select Resume Logging on Start under the Logging menu and try starting the Hydra again. Since the configuration is uploaded to the Host Computer instead of downloaded to the Hydra, the scans in the Hydra memory are not cleared.

Hydra *X*: Calibration Corrupted! **C-19.**

The Hydra's calibration constants have been corrupted. The Hydra instrument needs to be recalibrated. See the Hydra manual's maintenance section for information on servicing the instrument.

Hydra *X*: Date/Time Corrupted! **C-20.**

The Hydra instrument no longer contains a valid date and time. Press the <Shift> INTVL button on the front panel of the Hydra instrument to ensure that the date and time are correctly set. This message can also occur if the Hydra's internal clock has failed. In this case, see the Hydra manual's maintenance section for information on servicing the instrument.

Unable to Create Plot Window! **C-21.**

The application was unable to create a new trend plot window. This error may occur if not enough memory is available. Close some applications, or exit and restart Windows and then try again.

Maximum number of plots reached! **C-22.**

The maximum number of trend plots (eight) have already been created. To delete one of the existing plots, select Delete Plot from the Plots menu.

Note that not all of the trend plot windows may be visible. All existing plots are listed in the Plots menu.

Low on memory! **C-23.**

There is not enough memory to complete the current operation. Either close some applications, or exit and restart Windows.

Maximum number of Hydras reached! **C-24.**

The maximum number of Hydra instruments (20) have already been created. An unused Hydra may be reconfigured for use, or deleted by selecting it and then selecting the Delete Hydra command from the Setup menu.

Cannot close application while Hydras are logging! C-25.

You must stop logging on all Hydra instruments before exiting *Wireless Logger for Windows*. Use Stop All Hydras under the Logging menu to stop logging on all Hydras, then exit the application.

Hydra X: Cannot change configuration while logging! C-26.

This message appears if you attempt to copy a Hydra configuration from one Hydra to a Hydra that is currently logging. Use Stop Hydra to stop logging on the Hydra you are copying to before attempting to change its configuration.

Hydra X: Communication Interruption! C-27.

Communication with the Hydra instrument has been interrupted. If this message occurs during logging, check the Logging Status window for the current communication status. If the total number of errors for the Hydra continually increase, communication is still being interrupted.

To prevent this error message window from reappearing, click on the Disable this warning check box. The error message is not displayed again until you exit and restart the *Wireless Logger for Windows* application.

Hydra X: Hydra Scan Memory Full! C-28.

Hydra scan memory is full. This condition occurs when scans are being collected in Hydra scan memory faster than *Wireless Logger for Windows* can retrieve them and the scan memory eventually fills up. This may be caused by frequent or prolonged communication interruptions that prevent *Wireless Logger for Windows* from retrieving scans fast enough, or by the Hydras being configured for short scan intervals such that *Wireless Logger for Windows* cannot keep up even under ideal communication conditions.

When Hydra scan memory becomes full, the Hydra instrument either overwrites the oldest scans in memory or stops storing new scans. The oldest scans are overwritten if the Wrap-Around Logging Mode has been enabled in the Hydra Configuration dialog box.

Hydra X: Unable to Write to Data File! C-29.

Wireless Logger for Windows was not able to write Hydra scan data to the data file. This could indicate that the directory structure for the data file has been deleted, that the application no longer has write permission for the file, or that the disk is full.

Unable to Open Setup File! C-30.

The application was not able to open the setup file specified on the command line or with the Load Logger Setup... command.

Ensure that the full path of the setup file is correct, and that the file exists. If this error occurs when starting *Wireless Logger for Windows* with a setup file on the command line, be sure you have the correct command line format:

If you use Save Logger Setup under the Setup menu item, the application attempts to save the setup file using the directory structure of the previous Save Logger Setup As... command. If the directory structure has changed, the application cannot save the setup file. Try using the Save Logger Setup As command.

Another possible cause of this error may be that another application has opened the file, denying write permissions to other applications.

The FILES setting in CONFIG.SYS file should be set to at least 30.

Unable to Write to Setup File! C-31.

The application was not able to write to the setup file.

Ensure that the setup file exists and is located in the proper directory. If you use Save Logger Setup under the Setup menu item, the application attempts to write to the setup file using the directory structure of the previous Save Logger Setup As... command. If the directory structure has changed, the application cannot write to the setup file. Try using the Save Logger Setup As command.

The FILES setting in CONFIG.SYS file should be set to at least 30.

Setup File is Invalid! C-32.

The selected setup file is either not a *Wireless Logger for Windows* setup file or its contents have been corrupted.

Unable to Create Configuration Text File! **C-33.**

The application was not able to create the Hydra configuration text file. Make sure that the full path of the file is correct.

The FILES setting in CONFIG.SYS file should be set to at least 30.

Unable to Write to Configuration Text File! **C-34.**

The application was not able to write to the Hydra configuration text file. This error may occur if the disk becomes full.

The FILES setting in CONFIG.SYS file should be set to at least 30.

Hydra X already has this filename! **C-35.**

Another Hydra has already been assigned this filename. Multiple Hydras cannot log data to the same file.

Hydra X: Hydra Execution Error! **C-36.**

The Hydra received an incorrect command, possibly due to a communication error. Retry the operation.

Hydra X: Hydra Command Error! **C-37.**

The Hydra received a command it did not recognize, probably due to a communication error. Retry the operation.

Hydra X: RF Transmission Error! **C-38.**

The Base Station modem was unable to transmit to the remote modem. This error occurs if the remote modem is out of range, turned off, or not configured to receive messages from the Base Station modem.

Hydra X: Time-out waiting for Hydra! **C-39.**

The Hydra was unable to communicate with the Host Computer. This error occurs when the Hydra is turned off, configured for the wrong baud rate or parity, not connected to the remote modem (or to the Host Computer for a local Hydra), not a Hydra instrument, or not quite in range to send a response to the Base Station, but close enough to receive the command from the Base Station.

Hydra X: Time-out waiting for Base Station! C-40.

The Base Station Host Computer is unable to communicate with the Base Station modem.

Use the Windows Terminal emulator to restore communication. Ensure that the baud rate, parity, etc. are correct.

Check the cable between the Base Station and the modem for proper connection. Make sure that the cable is connected to the correct COM port, and that the port has been properly set up to communicate with the modem. Verify the modem configuration parameters.

This error can also occur if the Base Station modem cannot determine when a packet begins and ends (due to disruptions in the RS-232 cable). To overcome this problem, it may be necessary to cycle power on the Base Station modem.

Hydra X: RS-232 Communications Error! C-41.

This message appears when an error occurs over the RS-232 serial port. Occasional RS-232 errors occur more often for high baud rates, and during file operations or network accesses.

If this error occurs repeatedly, there may be a more serious problem. First, verify that the serial port settings in *Wireless Logger for Windows* match the settings in the Base Station modem or the local Hydra. If these are correct, the problem is probably due to a hardware conflict in the Host Computer, such as a serial mouse or an internal modem sharing the same interrupt request line as the serial port.

Hydra X: Not enough memory to perform operation! C-42.

Not enough memory is available to perform the operation. Close some other applications and try again.

Hydra X: Unable to initialize communications port! C-43.

Wireless Logger for Windows is unable to initialize the Host Computer's serial COM port. This indicates that the COM port does not exist or is being used by another application. (Be sure that you close the terminal emulator program after you have finished configuring the modems.) Also be sure that the COM port selected for a local Hydra is not the same as he COM port selected for the Base Station modem in the *Wireless Logger for Windows* application.

Hydra X: Unsupported model or version of Hydra! C-44.

This error occurs if you are using any Hydra instrument other than a model 2625A or model 2635A using software version 5.5 or later. To determine the version of the software running on the 2625A, press the right and left arrow keys on the Hydra instrument simultaneously. The version number is shown in the center of the display. Press the CANCL key to exit.

Appendix D
Dynamic Data Exchange (DDE)

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DYNAMIC DATA EXCHANGE (DDE)

Dynamic Data Exchange allows you to transfer data between applications, and updating the data as it is being gathered.

To display the data, you must first link your application (such as a spreadsheet) to the *Wireless Logger for Windows* application. You must enter the application name (Wlogger), a topic and an item before the link can be established. In some cases, the link is established by entering the application name, topic, and item into a formula for a specific cell. Other applications allow you to enter the application name, topic, and item into a dialog box. Once the link is established, *Wireless Logger for Windows* updates the application with new data whenever the data changes.

In many applications, you can also manipulate the data that is being received from the *Wireless Logger for Windows* application using Macros. See your application manual for more information.

The following application name, topics, and items are available for *Wireless Logger for Windows* (the names are not case sensitive):

Application name:	Wlogger	
Topics:	System	System Topic
	HydraX	Number of the Hydras from the Hydra Selection Icon Bar (X can be 1 through 20)
Items (System Topic):	Topics	List of Topics ("System, Hydra 1, Hydra2, ...")
	Systems	List of System Items ("Topics, SysItems, Formats")
	Formats	List of DDE formats ("TEXT")
Items (Hydra Topic):	cX	Channel X reading (X can be 0 through 20)
	Hydra_Name	The name of the selected Hydra instrument (set using Describe Hydra under Setup)
	RDate Time	Seconds since 00:00:00 01/01/1970
	ELDate Time	Date/time format compatible with Excel and Lotus 1-2-3
	DIO	Hydra DIO, DIO 0 through 11 (includes DIGITAL I/O and ALARM OUTPUTS)
	Totalizer	Hydra totalizer value

For example, to access the data from channel 10 of Hydra instrument number 1 within an Excel spreadsheet cell, use:

```
=Wlogger|Hydra1!c10
```

to get the name of the Hydra instrument number 6:

```
=Wlogger|Hydra6|Hydra_Name
```

Appendix E
Fluke Service Centers

USA

California
Fluke Technical Center
46610 Landing Parkway
Fremont, CA 94538
TEL: (510) 651-5112
FAX: (510) 651-4962

California
Fluke Technical Center
16715 Von Karman
Avenue
Suite 110
Irvine, CA 92714
TEL: (714) 863-9031
FAX: (714) 863-1723

Florida
Fluke Technical Center
550 S. North Lake Blvd.
Altamonte Springs, FL
32701-5227
TEL: (407) 331-2929
FAX: (407) 331-3366

Illinois
Fluke Technical Center
1150 W. Euclid Avenue
Palatine, IL 60067
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Appendix F
Exception Condition Handling

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EXCEPTION CONDITION HANDLING F-1.

This appendix describes how *Wireless Logger for Windows* handles exception conditions during operation.

Communication Errors F-2.

If a communication error occurs (time-out, RF transmission error, overrun, framing, or parity) during the reception of scan data, the request for data is repeated up to three times. If all three attempts fail, *Wireless Logger for Windows* then goes on to service the other Hydras before again asking the Hydra for data. The number of accumulated communication errors appears in the Logging Status window, along with a short description of the last communication error.

If the communications connection to a Hydra is interrupted during logging, *Wireless Logger for Windows* times out each time it attempts to communicate with the Hydra. These time-outs appear as communication errors in the Logging Status window display, and a window is displayed with a warning message, bringing the *Wireless Logger for Windows* application to the top.

After communications are restored, if the Hydra's scan memory has become full, a window with a warning message indicating possible data loss is displayed.

Wireless Logger for Windows attempts to retrieve scans stored in the Hydra's scan memory during the communication loss.

Full-Disk F-3.

If the disk becomes full during data collection or if the directory structure is deleted such that attempts to write to the data file fail, subsequent scans are not recorded, but communication with the Hydra and data display continues. A window with a warning appears, bringing the *Wireless Logger for Windows* application to the top. When the problem is fixed, *Wireless Logger for Windows* resumes recording scans in the file.

Invalid Entries F-4.

Diagnostic messages are displayed if the user enters invalid values into the fields of a dialog box.

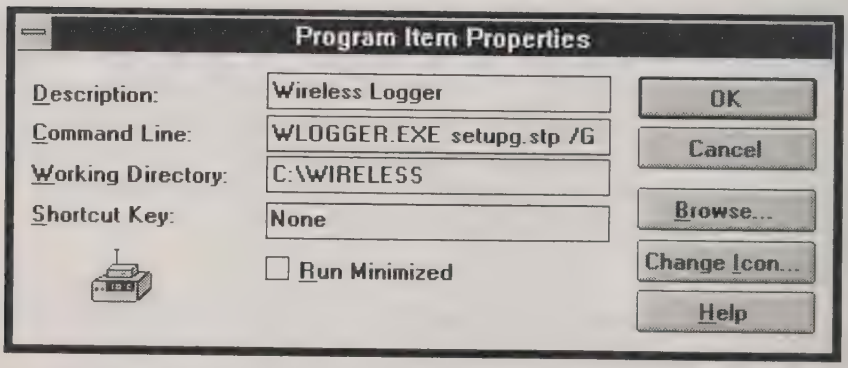
Loss of Power

Complete the following procedure to automatically resume data collection after a loss and then restoration of power to the Host Computer.

1. In DOS, verify that your `AUTOEXEC.BAT` file includes `WIN` to start windows when power is returned to the Host Computer. Be sure there is nothing in the `AUTOEXEC.BAT` or in Windows that requires a prompt, e.g., network name, passwords, etc.

2. In Program Manager, select the Copy... command from the File menu to copy the Wireless Logger icon (in the Fluke Wireless Logger group) to the Windows StartUp group. Create the StartUp group if it does not exist using the New... command from the File menu in Program Manager.

3. Highlight (but do not open) the Wireless Logger icon in the StartUp group. Select the Properties command from the File menu in Program Manager. At the end of the Command Line in the Program Item Properties dialog box, add the name of the special setup file that will be in use when the Host Computer power is restored, and follow this with the `/G` switch. For example, using the special setup file `SETUPG.STP`, the entire Command Line would read: `C:\WIRELESS\WLOGGER.EXE SETUPG.STP /G` (below). `SETUPG.STP` (for example) is a special setup file that is identical to the normal setup file, except for a few settings described below.



4. Open Wireless Logger from the Fluke Wireless Logger group of Program Manager. Select the Load Logger Setup... command from the Setup menu, and select the desired setup file for normal operations. For example, `setup.stp`. Click OK.

5. Select the Save Logger Setup As... command from the Setup menu and enter the name of the special setup file. For example, `setupg.stp`. Click OK. This filename must agree with the filename entered in step 3.

6. Add the following selections to the special setup file: select the Resume Logging on Start command from the Logging menu, and for each Hydra, select Append to File in the Data File Configuration dialog box (click the Edit Hydra Config... button, then Data File... button). Click OK twice to return to the Main Window.

7. Select the Save Logger Setup command from the Setup menu to save the selections entered in step 6.

8. To test the automatic data collection feature when power is lost, close all Windows applications except for *Wireless Logger for Windows*. Click the Start Hydra button in the *Wireless Logger for Windows* Main Window and verify data collection activities.

9. Turn the Host Computer power off, pause, and then on again. Observe the Host Computer reboots and resumes *Wireless Logger for Windows* data collection activities, as displayed on the Logging Status dialog box.

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Remote Modem		
Serial Number	Description	Comment